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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

The Bureau Of Economic Analysis Should Lead Efforts To Improve GNP Estimates

Analyses of revisions to the gross national product (GNP) estimates over the past 30 years show an overall commendable record. The size of revisions, although small, was larger during periods of economic instability, which was troublesome to users. The GNP components causing most of the revisions to the estimates continue to present problems, and the data for the components have been affected by recent budget cuts, among other things. Also, current data are not available for estimating some GNP components.

The size of revisions to GNP estimates at critical times for the economy has caused policymakers to question the reliability of the estimates. In 1977 an OMB advisory committee made 155 recommendations to 24 Federal agencies to improve GNP's data base. Leadership was lacking to establish the most needed changes given limited resources. Less than one-third of the recommendations have been implemented. The ones affecting the most troublesome GNP components have largely not been implemented.

The Bureau of Economic Analysis needs to take the lead in determining the cost of improving the GNP estimates and the likelihood that such improvements will make an appreciable difference.



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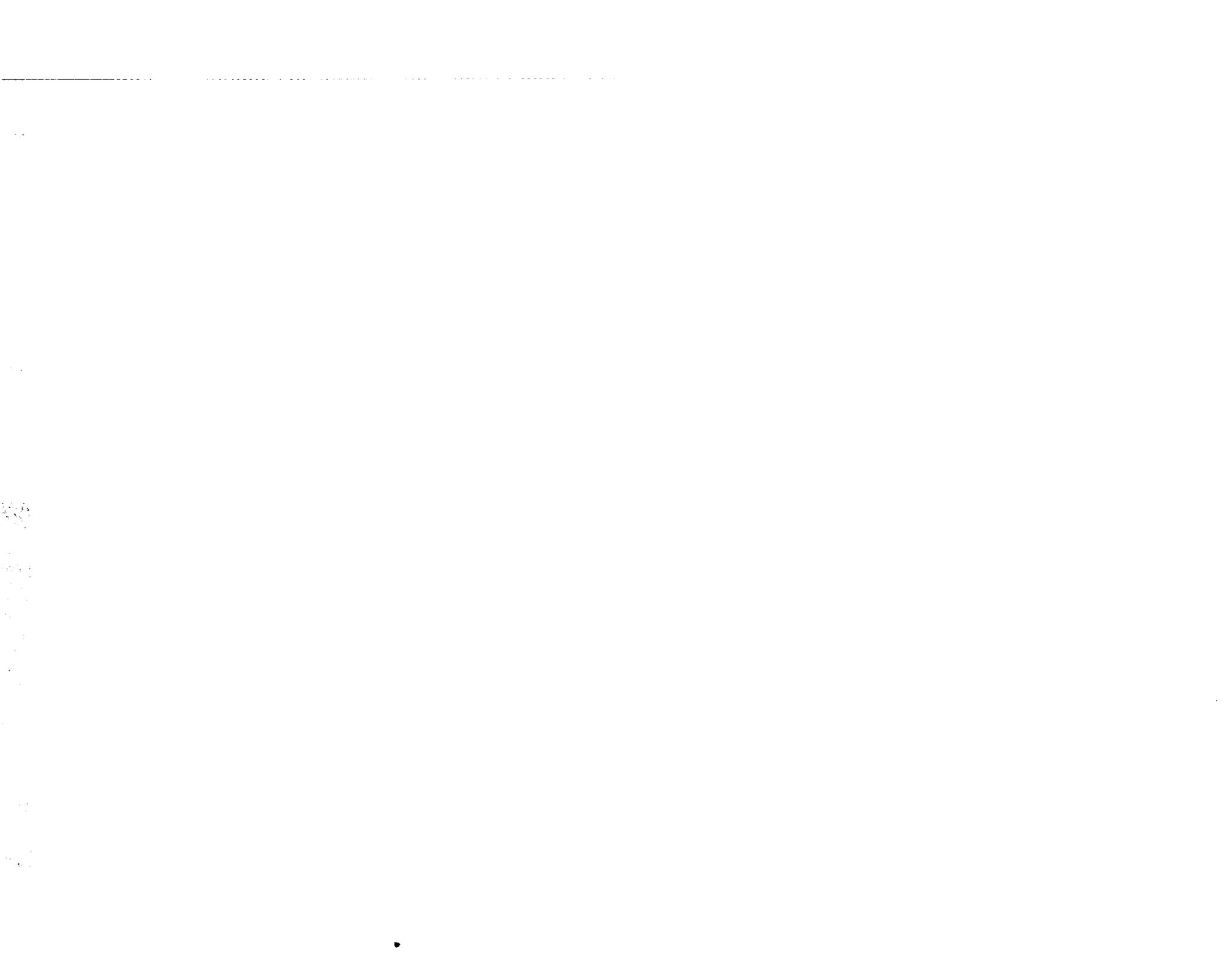
To the President of the Senate and the
Speaker of the House of Representatives

There have been concerns in the past about the reliability of the GNP estimates at critical times for the economy. This report analyzes the revisions made to the GNP estimates over the past 13 years and presents our assessment of their reliability. It also examines the management mechanism in place to determine whether improvements are needed and evaluates who best should lead the effort.

Copies of this report are being sent to the Director, Office of Management and Budget; and to the Secretary of Commerce.

Charles A. Bowsher

Comptroller General
of the United States



D I G E S T

The gross national product (GNP) estimates measure the Nation's output of final goods and services at their market value. The estimates provide an overview of current economic output used to predict future economic activity, assess the effect of Federal policies on the economy, and help identify needed changes.

The Department of Commerce's Bureau of Economic Analysis (BEA) prepares the estimates initially 15 days after each calendar year quarter at annual rates. At least seven scheduled revisions are made to the estimates to reflect the availability of additional data. Numerous data are used to prepare the estimates, most of which are gathered by Federal and private organizations for other purposes.

The size of scheduled revisions to GNP estimates in the early 1970s, and their occurrence at critical times for the economy, caused complaints from economic policymakers that led the Office of Management and Budget (OMB) to create an Advisory Committee on GNP Data Improvement. The committee made 155 recommendations in 1977 to 24 Federal agencies to improve the data used in estimating GNP. Most of the recommendations have not been implemented.

The many recommendations for improving the GNP estimates were made without considering which, given limited resources, were most needed. The Congress is concerned about how reliable the GNP estimates are in measuring the Nation's economic output and the effects of recent budget cuts that eliminated some data used for the GNP estimates. GAO reviewed the revisions to the GNP estimates for a 13-year period (1968 to 1980) to aid the Congress in determining the reliability of the GNP estimates and to categorize the relative importance of the committee's recommendations.

REVISIONS TO GNP ESTIMATES
ARE SMALL BUT CAN BE
TROUBLESOME TO USERS

The difference between an earlier GNP estimate and a later revised estimate for the same period is considered an error in the earlier estimate. Over the 13 years, the scheduled revisions to earlier GNP estimates were small, on average less than a percentage point and showed that the earlier estimates understated the change in economic activity. The earliest GNP estimates (issued 15 days after each quarter) are subject to greater error with the error being reduced in later revised estimates for the same period as better data become available. (See p. 16.)

Another reliability test is how the size of the revision (error) compares to the rate of change in economic activity from one quarter to the next, which is important for users. The error in the earlier estimate should be small when compared to the rate of change from quarter-to-quarter in economic activity. If the error is large, the rate of change would reflect mostly error in estimating rather than a change in economic output. For the 13 years, the early estimates' error was only 20 percent of the rate of change in economic activity being measured. (See p. 16.)

Another test is whether an estimate showed correctly which way the economy is going. Estimates that failed to show correctly when the economy was expanding or contracting (directional misses) occurred only once in the 13 years. (See p. 16.)

BEA's review of revisions to the GNP estimates for earlier periods (1947-61 and 1964-71) showed about the same results as GAO's study. Although the reliability of GNP has been stable for over 30 years, the studies showed that the size of revisions, although small, was larger during periods of economic instability, which was troublesome to users. (See p. 19.)

The estimates of the individual components of GNP, such as personal consumption expenditures

and business inventories, are important for users in analyzing changes in the economy. Revisions to the component estimates show a small, although larger and more troublesome error for users than for total GNP. As GAO found for estimates of total GNP, the average revision to earlier estimates for most of the components was less than a percentage point. However, for 14 of 27 components the error in the early estimates was at least 50 percent of the rate of economic change measured by the component. A higher rate of directional misses is also revealed at the component level, a 10-percent rate for 15 components including at least 30 percent for 5 components. (See p. 25.)

GAO identified six components which are most troublesome in providing reliable GNP estimates. The change in nonfarm business inventories, net exports, farm proprietors' income, and corporate profits accounted for relatively large revisions. These four contribute the most to the total revision, even though they represent a small portion of the total GNP. Parts of the services and State and local government purchases components, which are a sizable portion of GNP, lack data for quarterly estimates and are projected based on past changes (trended). Trending results in small revisions which could change if data were available to prepare and revise the estimates. (See pp. 35 and 38.)

HOW SERIOUS ARE THE GNP REVISIONS?

Analyses of revisions to GNP estimates over 30 years show an overall commendable record. Users are satisfied with total GNP estimates, however, troublesome GNP components and recent budget cuts, among other things, that eliminated some data used for preparing GNP components are problems that should not be ignored.

Prominent Federal and private users GAO contacted were satisfied overall with total GNP's reliability for economic policymaking and forecasting. Revisions to the components GAO found to have relatively large revisions have caused

users concern on five occasions for the 13-year period analyzed. (See p. 23.)

Recent budget cuts have caused reductions in GNP's data base including data for three of the four components with relatively large revisions and one of the components being trended. The data reductions' effect on GNP's reliability is unknown. (See p. 58.)

No precise criteria have been set for determining the acceptability of revisions to the GNP and component estimates. Generally, the estimates are unreliable if they contain an error of greater size than the rate of change in economic activity being measured. More difficult is judging whether revisions that are less than the rate of change, but still large, are acceptable. Many GNP component estimates fall in this category.

Also, the seriousness of directional misses when viewed in retrospect is difficult to determine. Reliability guidelines and a program for periodic analysis of the estimates would help to identify needed improvements. (See p. 12.)

BETTER MANAGEMENT NEEDED
IN DECIDING ON GNP DATA
IMPROVEMENTS

The Advisory Committee on GNP Data Improvement's recommendations provide an extensive list of problems with data used to estimate GNP. Oversight of the committee's recommendations by the Department of Commerce's Office of Federal Statistical Policy and Standards and now OMB's Office of Information and Regulatory Affairs has been limited and less than effective to assure the most needed improvements were made. Priorities set did not consider the most needed improvements and their cost when resources were limited. (See p. 57.)

As of February 1982, 49 of the 155 recommendations of the committee had been fully or partially implemented. The data collection agencies generally implemented those recommendations that cost little, benefited their own mission, or were easily done. (See pp. 48 and 51.)

GAO's study shows 6 GNP components are most troublesome in providing reliable estimates and that 22 of the 74 recommended improvements affecting them have been made. Many of the committee's recommendations are directed at components that during the 13-year period examined were not a significant cause of revisions. (See pp. 48 and 51.)

BEA has the expertise to further identify and better justify data needs for GNP and should take the lead in improving the GNP estimates. In deciding on GNP improvements, BEA needs reliable cost data to weigh against the gains anticipated. The importance of restoring recent reductions in GNP's data base should also be considered in determining the priority of data improvements for the GNP estimates. These initial steps are necessary to make informed judgments about additional resources, if any, that should be provided for affecting long-term improvements to GNP estimates. (See pp. 58 and 61.)

RECOMMENDATIONS TO THE
SECRETARY OF COMMERCE
AND TO THE DIRECTOR, OMB

GAO made a number of detailed recommendations to place BEA in a leadership role for GNP estimate improvements and to provide guidance to BEA for determining and obtaining necessary improvements to GNP estimates. OMB assistance is also requested to help BEA. (See pp. 45 and 63.)

AGENCY COMMENTS

OMB and Commerce have opposing views to the roles GAO has outlined for the two agencies. OMB agrees that Commerce should take the lead in managing GNP improvement efforts because of its role as the producer and data source for many of the GNP components. It also believes that BEA is properly designated for identifying and justifying improvements where needed. On the other hand, Commerce believes OMB should lead because it has the authority to coordinate Federal statistical policy and it has less perceived bias. (See pp. 45 and 64.)



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ABBREVIATIONS

BEA	Bureau of Economic Analysis
GAO	General Accounting Office
GNP	Gross National Product
OMB	Office of Management and Budget

CHAPTER 1

INTRODUCTION

The gross national product (GNP) estimates measure the Nation's output of final goods and services at their market value. The GNP estimates, prepared by the Department of Commerce's Bureau of Economic Analysis (BEA), are among the most important and widely used Federal economic statistics. The GNP 1/ as illustrated on page 2 is the summary figure of the national income and product accounts which highlight activity in the economy's major sectors.

GNP estimates are scheduled to be revised to reflect new data that becomes available. The size of some revised GNP estimates in the past has drawn complaints from economic policymakers who claimed that the earlier estimates had misled their analysis of needed action. On other occasions, although not as critical, revised estimates gave a somewhat different picture of the state of the economy. In the early 1970s substantial revisions to the GNP led to the creation of an Advisory Committee on GNP Data Improvement. The advisory committee made 155 recommendations in 1977 which were to be implemented over a 6-year period to improve the quality and timeliness of the underlying data used in preparing the GNP estimates. The recommendations were directed mainly at those Federal agencies responsible for collecting the data. It is unlikely that all of these improvements will be made in the future. GAO undertook an evaluation to determine whether there is a need for improving the GNP estimates and who best should lead the improvement efforts, if they are needed.

HOW GNP IS ESTIMATED

BEA prepares the GNP estimates using a variety of data not designed specifically to measure the Nation's output of goods and services. BEA constructs the GNP from numerous general, administrative, and regulatory statistical series collected by Federal

1/Technically, in the national income and product account framework, GNP represents the product side of the account and is the total spending of consumers, business investors, foreigners, and governments. Charges against GNP on the income side of the account is an alternative measure of GNP. It is measured as the costs incurred and profits earned during production. The value of total output, GNP, with the statistical discrepancy equals the value of claims against total product. In this report GNP will be used in reference to the national income and product account, unless otherwise noted.

GNP Account Framework (note a)

Income side	Product side
Compensation of employees	Personal consumption expenditures
-Wages and salaries	-Goods: durable and non-durable
-Supplements to wages and salaries	-Services
Proprietors' income with inventory valuation and capital consumption adjustments	Gross private domestic investment
-Farm	-Structures: residential and nonresidential
-Nonfarm	-Producers' durable equipment
Rental income of persons with capital consumption adjustments	-Change in business inventories
Corporate profits with inventory valuation and capital consumption adjustments	Net exports of goods and services
-Profits before tax: profits tax liability and profits after tax	-Exports
-Inventory valuation and capital consumption adjustments	-Imports
Net interest	Government purchases of goods and services
NATIONAL INCOME	-Federal: national defense and nondefense
Business transfer payments	-State and local
Indirect business tax and nontax liability	
Less: subsidies less current surplus of Government enterprises	
CHARGES AGAINST NET NATIONAL PRODUCT	
Capital consumption allowances with capital consumption adjustment	
CHARGES AGAINST GROSS NATIONAL PRODUCT	
Statistical discrepancy	
GROSS NATIONAL PRODUCT	GROSS NATIONAL PRODUCT

a/GNP component definitions are in appendix I.

agencies and private organizations. Because the data are generally collected for purposes other than GNP, they do not always conform to the concepts or timing of the GNP estimates. BEA takes these numerous data, including some of its own survey information, adjusts them for conceptual differences, projects for missing data, and thus blends the data with judgment to estimate GNP. 1/

Since the GNP depends heavily on the output of many statistical collection activities in the Federal Government, BEA's budget does not reflect the true cost of GNP. For fiscal year 1983, the BEA appropriation request was \$18.6 million and 448 permanent positions. BEA's National Income and Wealth Division which produces the GNP estimates portion accounted for \$2.6 million and 68 permanent positions. If all of the data used to estimate GNP were collected solely for that purpose, the GNP's cost could be in the hundreds of millions of dollars.

BEA estimates GNP quarterly and annually in current and constant dollars. The quarterly estimates are prepared at annual rates to make them comparable to previous annual estimates. The quarterly estimates therefore show what the current year's estimate would be if the other three quarters had the same level of activity as the quarter being measured.

Quarterly and annual GNP estimates are revised at least seven times but never really become final. The preliminary quarterly estimates are prepared 2 weeks (15 days) after each calendar quarter's end followed by a 45-day and a 75-day revision. After the calendar year, the 75-day estimates for the first three quarters and the 15-day estimate for the fourth quarter are averaged to obtain a 15-day annual estimate. The annual estimate is revised again when the fourth quarter's 45-day and 75-day estimates are prepared. The quarterly and annual estimates are also revised in July following the calendar year (first July estimates) and subsequently two more times during July of the following years (second and third July estimates).

Periodically, BEA performs a comprehensive revision of GNP. The revision, referred to as benchmark revision, follows the

1/A more detailed explanation of GNP estimation procedure and concepts can be found in a previously issued GAO report, "A Primer on Gross National Product Concepts and Issues" (GGD-81-47, Apr. 8, 1981). Additional sources can be found on page vii of the U.S. Department of Commerce publication The National Income and Product Accounts of the United States, 1929-76: Statistical Tables (Washington, D.C.: GPO, 1981).

Bureau of the Census' 5-year economic and agriculture censuses ^{1/} and uses new data from the censuses as well as other sources and changes in definition, classification, and methodology. These types of changes are generally made only with the benchmark revisions. The quarterly and annual estimates are revised for the calendar year since the last benchmark, revised again with the next benchmarking, and possibly again with subsequent benchmark revisions.

The revisions to the GNP estimates are timed with the availability of additional source data. Data availability is illustrated in the following example of the GNP product side estimates.

The 15-day quarterly estimates are based on incomplete and preliminary data from various sources. BEA officials use their knowledge (judgment) of the economic activity to compensate for the missing data. For the third month in the quarter, the 15-day estimates contain 31 key components supported by either BEA's projections or preliminary source data subject to revision. The second month of the same quarter's estimate contains 24 such components, and the first month in the quarter contains 10. Generally more information becomes available for the 45-day estimates. When 75-day quarterly estimates are made, five components--electricity, part of other services, farm inventories, medical vendor payments, and other State and local government purchases--rely on projections and preliminary data. The table on page 5 illustrates the extent BEA relies on projections and preliminary data in preparing the quarterly preliminary (15-day) GNP product side estimates.

Generally, the same source data are used for the GNP's 45-day, 75-day, and first July revisions. For the second and third July revisions, different source data become available. These source data include annual surveys and some totally different sources. For example, BEA utilizes data from the Federal Trade Commission and other Federal regulatory agencies in estimating quarterly corporate profits, but when it is revised with the second and third July estimates, Internal Revenue Service data on corporate income are used to revise annual levels. The same quarterly data are used in revising the quarterly changes within the year.

For most GNP components, monthly or quarterly data are available. However, there are some components for which only annual

^{1/}The censuses provide the most comprehensive data about the structure and function of the economy and include data on retail and wholesale trade, service and construction industries, manufactures, mineral industries, transportation, and agriculture.

**Key Projections For Quarterly
Preliminary GNP Estimates**

<u>GNP Components</u>	<u>Percent Of GNP</u> <small>(note a)</small>	<u>Incomplete Source Data Months In The Quarter</u>		
		<u>First</u>	<u>Second</u>	<u>Third</u>
Personal Consumption Expenditures				
Goods				
Motor vehicles ¹	3.6	[Final data subject to future revision]		
Gasoline and oil	3.2	[Preliminary data subject to revision the following month]		
Other	26.8	[Final data subject to future revision]		
Services				
Housing	10.5	[Preliminary data subject to revision the following month]		
Electricity	1.5	[Final data subject to future revision]		
Natural gas	.7	[Final data subject to future revision]		
Telephone	1.1	[Final data subject to future revision]		
Private hospitals	3.0	[Final data subject to future revision]		
Other	13.7	[Final data subject to future revision]		
Gross Private Domestic Investment				
Residential structures				
Housing construction	3.2	[Final data subject to future revision]		
Mobile homes	.2	[Final data subject to future revision]		
Nonresidential structures				
Buildings, utilities, and farms	3.4	[Final data subject to future revision]		
Oil and gas drilling	.9	[Final data subject to future revision]		
Other	.1	[Final data subject to future revision]		
Producers' durable equipment				
Motor vehicles	1.1	[Final data subject to future revision]		
Aircraft	.2	[Final data subject to future revision]		
Other	5.6	[Final data subject to future revision]		
Change in business inventories				
Manufacturing	.2	[Final data subject to future revision]		
Merchant wholesalers	.1	[Final data subject to future revision]		
Retail trade	.4	[Final data subject to future revision]		
Other nonfarm	-.2	[Final data subject to future revision]		
Farm	.1	[Final data subject to future revision]		
Net Exports of Goods and Services				
Exports				
Merchandise	7.6	[Final data subject to future revision]		
Other	4.7	[Final data subject to future revision]		
Imports				
Merchandise	-8.8	[Final data subject to future revision]		
Other	-2.9	[Final data subject to future revision]		
Government Purchases of Goods and Services				
Federal	7.7	[Final data subject to future revision]		
State and local				
Compensation of employees	7.0	[Final data subject to future revision]		
Structures	1.4	[Preliminary data subject to revision the following month]		
Medical vendor payments	.8	[Final data subject to future revision]		
Other	3.1	[Final data subject to future revision]		

Legend:

- [Solid black box] Final data subject to future revision.
- [Hatched box] Preliminary data subject to revision the following month.
- [White box] Projection utilizing judgment.

¹ 1981 third quarter GNP estimates.

data are available. For these components, the quarterly estimates are trended (projected) using data from the last year's annual estimates. Components trended on the product side include part of personal consumption expenditures for services and part of State and local government purchases. These two items account for about 12 percent of GNP's product side. On the income side, the other labor income component of employee compensation, part of proprietors' income, rental income of persons, and net interest are trended and represent 18 percent of national income.

HOW GNP IS USED

GNP estimates have broad Federal and private sector uses. The early estimates ^{1/} are used more for short-term policymaking and are more critical than the later estimates, annual and benchmark. For the early estimates, quarter-to-quarter percent changes are looked at more closely than dollar levels. The quarter-to-quarter changes in the GNP show what is occurring in the economy from one period to the next whereas the dollar level shows where it is at some point in time. The early GNP estimates are considered by Federal policymakers and economists in following and forecasting the composition and course of economic activity for its effect on employment and inflation. The later revised GNP estimates are used for long-term analyses and projections of structural change in the economy.

Although the GNP estimate is the most notable and frequently quoted figure, its composition is equally important to policymakers and economists in analyzing economic activity. Components such as corporate profits and inventories are two vital indicators of business activity. A change in business inventories shows the nature of an expansion or contraction in economic activity. For example, an increase in business inventories in a period of declining sales could indicate an unintentional inventory accumulation with the likelihood of a subsequent decline in production.

While the Federal users are concerned with managing the Nation's economy, industry users are concerned with company sales and profit. They relate the economywide outlook to their company's plans for business activities such as investments and marketing programs. Commercial economic forecasting firms are also major users of GNP data. Their forecasting models use GNP as a basic framework for projections of economic activity which are used by the Government and industry. Other non-Federal users include State and local governments, professional and labor organizations, academicians, and research organizations.

^{1/}The early estimates include the 15-day, 45-day, and 75-day quarterly GNP estimates.

Although the Federal and private sector analytical uses of GNP are primary, additional Federal uses are made or proposed. For example, the Trade Act of 1974 (P.L. 93-618) specifies the use of annual GNP estimates in determining limitations on preferential treatment extended to countries exporting goods to the United States. In the Energy Policy and Conservation Act (P.L. 94-163), any energy conservation or rationing contingency plan submitted to the Congress by the President must include an evaluation of its potential economic impact, including its effect on GNP. Proposed legislation in the 97th Congress would limit Federal spending to a specified percentage of GNP.

THE ADVISORY COMMITTEE ON GNP DATA IMPROVEMENT

Motivated by substantial revisions to GNP estimates in the early 1970s, the Office of Management and Budget (OMB) established the Advisory Committee on GNP Data Improvement in 1973 to evaluate the data problems. The large revisions, although not unprecedented, affected the earlier estimates at critical phases of the business cycle and caused concern among Federal policymakers and economists. In the July 1971 revision, annual estimates of the corporate profits component for 1969 and 1970 were revised downward (\$7 billion for 1969 and \$5.9 billion for 1970). Six months later, a January 1972 downward revision of GNP for the second and third quarters of 1971 (\$3.1 billion and \$7.4 billion) was caused by changes to the personal consumption expenditures and gross private domestic investment components. These large downward revisions indicated less strength in the economy than the earlier figures had indicated. The revisions were attributed to weaknesses in the underlying data. The advisory committee was to identify the data deficiencies, determine how to eliminate them, and ascertain the cost of the needed improvements. It examined all GNP components.

The advisory committee consisted of six nongovernmental GNP account experts who were aided by three project staff members from Federal agencies. The committee chairman also served as the project staff director. The committee members and their affiliation while working on the project included Daniel Creamer, Conference Board (Chairman); Rosanne Cole, International Business Machines; Edward Denison, Brookings Institution; Raymond Goldsmith, National Bureau of Economic Research; John Kendrick, George Washington University; and Alan Greenspan, Townsend-Greenspan, Inc. Mr. Greenspan left the committee in mid-1974 when he became Chairman of the Council of Economic Advisors.

The advisory committee's approach to reviewing the GNP data base involved the project staff consulting BEA to identify the problem areas and the source data agencies on the

feasibility and costs of dealing with the problem areas. The project staff assessed the data problems and proposed corrective measures which were reviewed and revised by the committee. Drafts of the report were reviewed by BEA and other appropriate Federal agencies.

The advisory committee's 1977 report 1/ focused on the data needs of the quarterly, annual, benchmark, and constant dollar GNP estimates. OMB's Office of Information and Regulatory Affairs--the successor to OMB's Statistical Policy Division and Commerce's Office of Federal Statistical Policy and Standards--is responsible for overseeing the implementation of the advisory committee's recommendations made to the Federal agencies supplying data used for GNP. 2/ The advisory committee recommended 155 data improvements to 24 Federal agencies to improve the data used for GNP estimates to be implemented over a 6-year period, 1978-83, at an estimated cost of roughly \$25 million in 1976 dollars. According to the advisory committee, the total cost was based on very elementary estimating techniques, including considerable reliance on rules of thumb.

The Federal agencies have fallen behind the advisory committee's scheduled plan. When we began our study in 1981, the latest available data (February 1980) showed 32 recommendations were implemented and 11 partially implemented. Eighteen of the 56 improvements scheduled to be implemented during 1978 and 1979 had been implemented. Several additional improvements directed at the 1977 economic censuses were implemented before the advisory committee study was completed. Progress in implementing the recommendations did not improve during our study. The 155 recommendations and their status as of February 1982 are listed in appendix II. The possibility that better progress will be made in the future now appears unlikely because of budget constraints. The advisory committee's evaluation and subsequent report did not attempt to single out those improvements which should be given the highest priority if only limited resources were available.

1/U.S. Department of Commerce, Gross National Product Data Improvement Project Report (Washington, D.C.: GPO, 1977).

2/The functions of OMB's Statistical Policy Division were transferred to the Department of Commerce in October 1977 by Executive Order 12013. The Office of Federal Statistical Policy and Standards was created within Commerce to carry out the Statistical Policy Division's functions. The Paperwork Reduction Act of 1980 (P.L. 96-511) transferred the Office's functions back to OMB in a newly created Office of Information and Regulatory Affairs effective August 23, 1981.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives were to (1) assess the importance of the advisory committee's recommendations for improving data series contributing to revisions to the GNP estimates and (2) establish an order of importance for implementing the advisory committee's recommendations. We did not attempt to rank order all the recommendations. As the advisory committee's study resulted from concern over revisions to the GNP estimates, we attempted to identify those GNP components accounting for the larger revisions and the recommendations which addressed these components and to determine the availability of cost data for the improvements. We did not assess the specific merit of the advisory committee's recommendations as to their contributions to reducing future revisions to the GNP estimates and, in that regard, whether the estimated costs of the improvements are justified.

Our work focused on analyzing revisions to the quarterly and annual GNP and component estimates over a 13-year period (1968 through the third quarter of 1980), determining if the recommendations were directed at the sources of the GNP revisions, obtaining the views of the agencies that provide the data for GNP on the need for the recommended improvements and the difficulties of making the improvements, and obtaining the views of 18 selected GNP users on the estimates' reliability for their uses.

The method for examining the revisions to the quarterly and annual estimates involved comparing the early estimates for a reference period to the later estimates for the same period. The difference between the two estimates, the revision, provides a measure of error removed from the earlier estimates. However, since the later estimates may also contain error, the revision is only a partial error measure. It measures only that part of the error which was removed in the revision process. Any error which remains in the latest estimate cannot be measured. Since the amount of error in the latest estimate is very unlikely to be uniform across components, the revisions should not be the sole criteria used in judging their reliability. Used alone, however, revisions do point to particular components which have relatively large revisions to earlier estimates and may need improvement. But this would not reveal the situation in which a component is never revised or revised very little because no additional information is available.

In assessing the GNP and its components, we used five summary measures of revisions which are defined in chapter 2 as used in analyzing GNP including their limitations. The measures include bias, relative bias, dispersion, relative dispersion, and directional misses. BEA provided technical and computer assistance in calculating the summary measures. We performed tests of BEA's work to assure that the computations were accurate and complete.

Our starting point for the analyses, 1968, was selected because of the desire to cover those years with revisions that triggered the advisory committee's evaluation. These analyses were used to identify GNP components with source data in need of improvement. The summary measures do not directly link revisions to the individual source data because there is more than one source data for the components we analyzed, and detailed records were not available at BEA for all the years of our study period. We relied on other detailed analyses of selected components and the knowledge and judgment of BEA officials to relate the reason or problem causing the revisions to the components we identified.

The 18 GNP data users we interviewed either provide analytical support to those who shape Federal economic policy or are prominent private analytical users. Federal users interviewed included officials from the Council of Economic Advisors, the Federal Reserve Board, the Joint Economic Committee, and the Congressional Budget Office. Private sector users included representatives from Townsend-Greenspan, Inc., Chase Manhattan Bank, General Motors Corporation, T. Rowe Price Associates, Inc., and The Conference Board. ^{1/} The users expressed views of GNP's reliability similar to those obtained by the advisory committee in response to questions asked of GNP users. Considering the consistency of the users' views and their recognition as important users of GNP, we believe that a consistently different opinion on the reliability of GNP estimates would not be expressed by other GNP users.

We performed our work at OMB's Office of Information and Regulatory Affairs, BEA, and the other 22 Federal agencies' headquarters in Washington, D.C., that provide the GNP source data at which the advisory committee's recommendations were directed. The major source data agencies include the Bureau of the Census, the Department of Agriculture's Statistical Reporting Service and Economic Research Service, the Bureau of Labor Statistics, and the Internal Revenue Service. We interviewed officials and examined records at BEA to obtain information on the GNP estimating procedures and revisions and the advisory committee's recommendations, and at the Federal source data agencies to determine the status of the recommendations and to gather data on their estimated cost.

In determining the status of the advisory committee's recommendations, some judgment was required on our part. We generally considered a recommendation to be fully implemented if a specific

^{1/}The Conference Board is a fact-finding institution which conducts research and publishes studies on business economics and management experiences.

change in form, content, or future course was made in a program or source data that could be used in estimating GNP. A recommendation was considered to be partially implemented if some specific action had occurred toward its completion. For instance, a recommendation was considered partially implemented if it called for the collection of a number of different data items and a portion of those items was collected. A recommendation was considered not implemented if no action occurred toward its completion. Generally, the study, consideration, or exploration of the collection or tabulation of data did not qualify as partially or fully implemented.

We conducted a literature search to identify articles, studies, and research performed on the GNP to aid us in planning the assignment. We utilized two computer search systems: SCORPIO, maintained by the Library of Congress; and DIALOG, maintained by Lockheed Information Systems. Additional studies and literature were also provided by BEA. We also conducted a search to identify legislation, enacted and proposed, which uses the GNP estimates beyond its primary use, that of an analytical nature. Two computer search systems were used: SCORPIO to identify proposed legislation; and JURIS, maintained by the Department of Justice, to identify enacted legislation.

Our work was performed in accordance with generally accepted Government auditing standards.

CHAPTER 2

GNP REVISIONS ARE SMALL BUT COMPONENT REVISIONS

MAY BE UNACCEPTABLE: GUIDELINES ARE NEEDED

The early estimates of aggregate GNP used by Federal policy-makers and the private sector have been historically revised by relatively small amounts. Although the amount of revision has been largely stable over the past 30 years, during recent years the extent of error in the early estimates has increased slightly. Users that we contacted were generally satisfied with the GNP's reliability but identified certain GNP account components--the change in business inventories, net exports, corporate profits, and farm proprietors' income--most frequently as being troublesome. Our analysis of revisions to the GNP components showed those four components have relatively large revisions, contribute the most to revisions in the GNP account, and may fail to meet the Federal statistical policy directive on the release of principal economic indicators. Two other components' early estimates which were not revised excessively, personal consumption expenditures for services and State and local government purchases, have large gaps in data coverage and therefore also have questionable reliability.

The present Federal statistical policy directive on the release of principal economic indicators does not specify precise guidelines of acceptable margins of revisions to the GNP estimates. The Federal directive does provide that the size of the revision should be small compared to the change in economic activity measured by a series' latest estimate. Without more specific guidelines, revisions analysis primarily provides a relative ranking of the components which contribute to revisions to the GNP estimates, and it provides a quantitative means of judging the overall reliability of the GNP components.

HOW GNP RELIABILITY IS EVALUATED

The GNP and component estimates lack precise error measures. The total error in GNP cannot be measured because the error in the various source data underlying the GNP cannot be added. Alternative means are therefore used to evaluate GNP's reliability. These include analyzing revisions to the GNP and its components and judging the quality of the data used to compile the estimates. The Advisory Committee on GNP Data Improvement focused on the deficiencies of the underlying data, but it did not report on the relative quality of the various source data underlying the GNP. We analyzed revisions to the GNP and its component estimates to provide a relative ranking of the components most needing improvement. The summary measures used to assess error in GNP and component estimates were bias, relative bias, dispersion, relative dispersion, and directional misses.

How the summary measures are calculated

How the summary measures are calculated is illustrated in the following table using hypothetical percent changes in GNP for a 4-quarter period.

Illustration of the Calculation of the
Summary Measures of Revisions

<u>Quarter</u>	<u>Early estimate</u>	<u>Latest estimate</u>	<u>Difference (Revision)</u>
	------(percent change)-----		
I	-1	3	-4
II	1	2	-1
III	3	2	1
IV	-2	-1	-1
Bias			-5/4 = -1.25
Average change (latest estimate)			6/4 = 1.5
Relative bias			(-1.25/1.5)x100 = -83.3
Dispersion			7/4 = 1.75
Absolute average change (latest estimate)			8/4 = 2.0
Relative dispersion			(1.75/2.0)x100 = 87.5

The three columns in the table show, for the four quarters, the percent change from the previous quarter as measured by early estimates, the latest estimates, and the differences or the revisions in the rate of change between the two sets of quarterly percent changes. The differences show that, for the first and second quarters, the early estimates understate the increase in GNP shown by the latest estimates. For the third quarter, the early figure overstates the increase, and for the fourth quarter the early figure overstates the decrease compared to the latest figure.

Bias and dispersion indicate the average revisions in the change in GNP. Bias indicates whether the early estimates tend to overstate or understate the rate of change compared to the latest estimates. Bias is the net average of the differences in the rate of change in GNP measured by the early and latest estimates.

In the illustration, bias is calculated by totaling the differences between the early and latest estimates (-5) and dividing by the number of quarters (4) to obtain a negative bias of 1.25 percentage points. Dispersion indicates the average overall extent of revision to the estimates. It is the absolute average revision, that is, disregarding whether revisions are plus or minus. Thus, the calculation would be the same as for bias except that the differences are totaled without regard to sign. In the illustration, the total of the differences (7) is divided by the quarters (4) to obtain a dispersion of 1.75 percentage points.

Relative bias and relative dispersion compare the average revisions in the change in GNP to the average change measured by the latest estimates. In the illustration, relative bias is bias (-1.25) divided by the net average change shown by the latest estimates (1.5) multiplied by 100 to equal minus 83.3 percent. The net average change in the latest estimates (1.5) is derived by totaling the percent changes (6) and dividing by the number of quarters (4). As relative bias relates to bias, so does relative dispersion to dispersion. Relative dispersion is dispersion (1.75) divided by the absolute average change, disregarding signs shown by the latest estimates (2.0) multiplied by 100 to equal 87.5 percent. The absolute average change in the latest estimates (2.0) is derived by totaling the percent changes, disregarding signs, (8) and dividing by the number of quarters (4).

Directional misses indicate the extent that the early estimates of change in the economy showed an increase or decrease in economic activity when the latest estimates showed the opposite change. Misses are calculated as the number or percent of times an early estimate shows the direction of change to be different than the latest estimate. In the illustration, one directional miss occurred for the first quarter where the early estimate showed a decrease and the latest estimate for the same quarter showed an increase.

The summary measures have limitations

The summary measures provide guidance in assessing the likely size of revisions to the early estimates and provide some indication of the relative reliability of GNP and its various components. These measures provide the most quantifiable method to evaluate GNP's reliability.

Revisions analysis, however, using the five summary measures should not be considered a complete test for assessing GNP accuracy. It has limitations. Comparing early to later estimates shows the amount of error taken out of the early estimates when it is assumed that the later estimates are more accurate, but presently no means exists for measuring the extent of error in the later estimates or for determining if the later estimates actually are better. The summary measures also only attest to

the reliability of GNP component series which are revised using presumably better data. Other series which are trended because no data becomes available may show small revisions and thus appear to be reliable. Another limitation is that the summary measures do not relate the size of revisions to the relative levels of the components.

Probably the most serious shortcoming of the summary measures to assess the reliability of aggregate GNP arises from the GNP estimation/revision process itself. As revisions are made, the various underlying components are revised up or down, perhaps by large amounts. In the compilation process, however, these upward and downward revisions tend to offset one another. Summary error measures for GNP alone thus are inadequate for assessing GNP reliability because they overlook the extent of error in the component estimates from which GNP is compiled. Focusing solely on the GNP revisions thus may lead to conclusions about GNP's reliability that could be different if a broader study of the components' revisions is undertaken.

Besides the limitations which one must be aware of when using the summary measures, another problem which arises is the lack of a guide to use in gauging the GNP's reliability. By analyzing the summary measures' computations, one can only compare the relative reliability of one component series to another. No definite quantitative guideline is established to judge whether GNP or any of its component series standing on their own are acceptable. However, Statistical Policy Directive No. 3, January 1981, administered by OMB's Office of Information and Regulatory Affairs, provides some guidance. Bias and relative dispersion are the measures used to assess revised Federal economic indicators' suitability for release. The directive states that

"preliminary estimates for series that represent principal aggregates should not be issued until the agency is reasonably confident that the difference between preliminary and final figures will be small relative to average period-to-period change."

The directive goes on to relax this guideline for subaggregates and states that series regularly showing significant bias in one direction more than another should be corrected. The directive does not specify what extent of revision is small for GNP, its components, or the revised source data series underlying the GNP.

Even without a definite guideline, there are cases where component series standing alone clearly do not meet acceptable margins of revision. An example would be a component series with a relative dispersion of 100 percent. The acceptability of this series' future early estimates would be severely harmed because

any change in economic activity measured by the series has a fairly good chance of being revised by the entire amount of such change.

AGGREGATE GNP ESTIMATES
SHOW SMALL REVISIONS

BEA's early estimates of the GNP aggregates used to gauge the economy's performance were revised by relatively small amounts over our 13-year study period. The margin of error as measured by the revisions has increased slightly over the last two decades. The successive revisions to the GNP estimates have further removed error from earlier estimates.

Early GNP estimates revised
by small amounts

Our analysis showed the early estimates of quarter-to-quarter change in current and constant dollar GNP, the GNP implicit price deflator--the ratio of current to constant dollar GNP--and national income were revised by relatively small amounts. The following table shows the summary measures of revisions to the quarter-to-quarter percent changes for the differently timed GNP aggregate estimates for the 13-year period.

Summary Measures of Revisions in Quarter-to-Quarter
Percent Change in GNP Aggregates
1968-1980

<u>Differently timed estimates</u>	<u>Bias</u>	<u>Dispersion</u>	<u>Relative bias</u>	<u>Relative dispersion</u>	<u>Directional misses</u>	
					<u>(Number of quarters)</u>	<u>(Percent of total quarters)</u>
<u>GNP in current dollars</u>						
15-day-latest	-.22	.42	-9.5	18.0	1	2
45-day-latest	-.15	.39	-6.3	16.6	1	2
1st July-latest	-.07	.26	-2.9	11.0	0	0
<u>GNP in constant (1972) dollars</u>						
15-day-latest	-.13	.44	-18.3	40.0	3	6
45-day-latest	-.09	.43	-12.7	39.1	0	0
1st July-latest	.00	.31	0.0	26.5	0	0
<u>GNP implicit price deflator</u>						
15-day-latest	-.09	.22	-5.6	13.6	0	0
45-day-latest	.06	.22	-3.7	13.6	0	0
1st July-latest	-.07	.19	-4.9	12.0	0	0
<u>National income in current dollars (note a)</u>						
45-day-latest	-.14	.39	-6.1	16.6	0	0
75-day-latest	-.13	.40	-5.5	17.0	0	0
1st July-latest	-.03	.27	-1.1	11.1	1	3

^a15-day estimates are not prepared for national income; therefore, 45-day and 75-day estimates were used

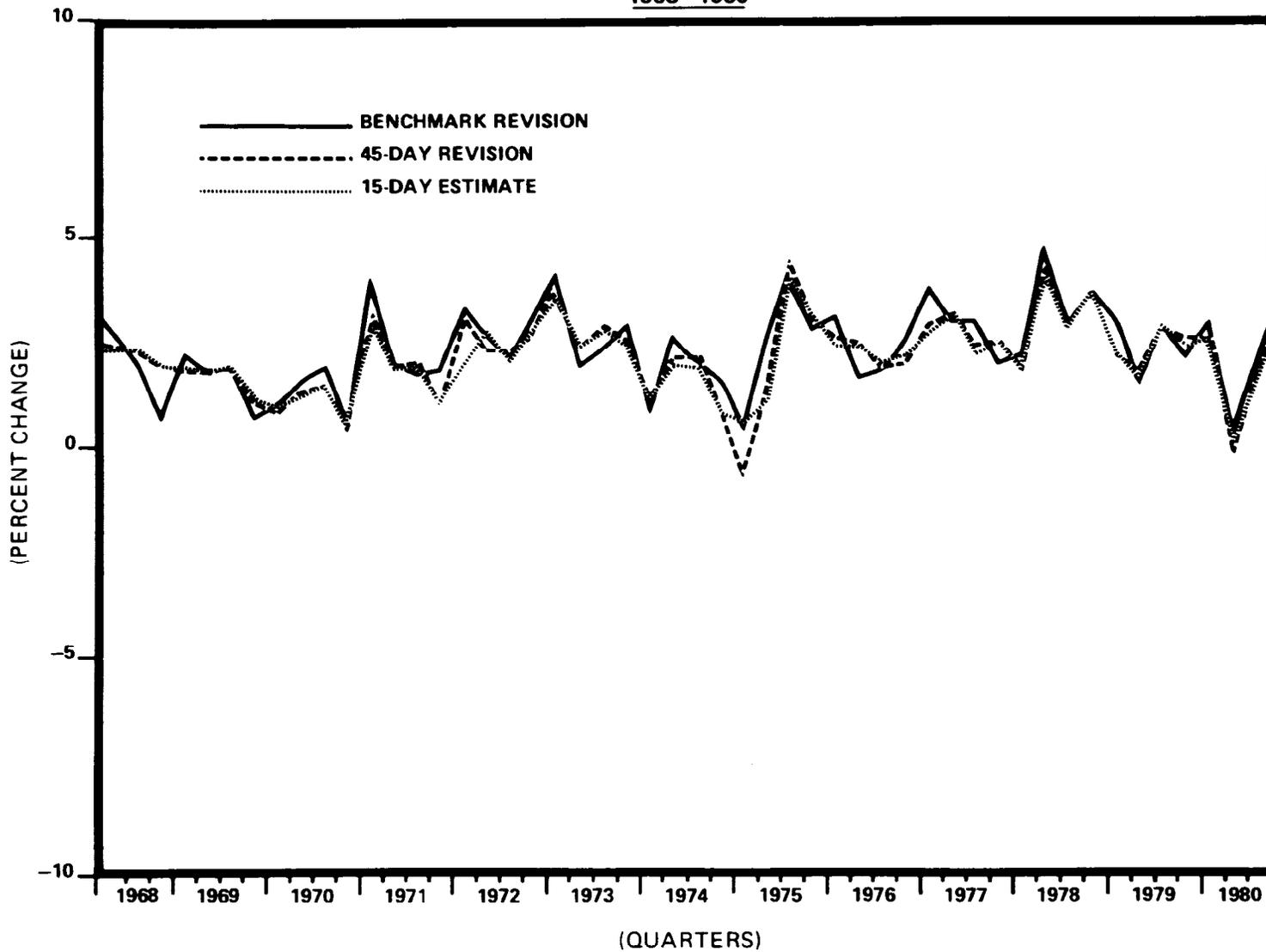
Revisions to quarter-to-quarter changes in the GNP aggregates are emphasized primarily because they are the measures most relevant for policymaking and they receive the most press coverage. The early estimates of quarterly current dollar GNP at a seasonally adjusted annual rate and constant dollar GNP, which is GNP adjusted for price changes, are the most widely publicized figures. The implicit price deflator is also publicized. The national income figures, which first appear a month later than the 15-day GNP, are not widely publicized but are an important measure of aggregate earnings.

Bias and dispersion for the 15-day, 45-day, and first July estimates of quarter-to-quarter percent change in the GNP aggregates were all less than 1 percentage point. Our selection of the 1 percentage point revision is not meant as a standard to judge the estimates' reliability. We selected it as a means of contrasting the relative size of revisions which are fractional and those involving larger units. Over the 13-year period analyzed, the early current dollar GNP estimates' revision exceeded 1 percentage point on only four instances. The 15-day current dollar GNP estimates' revision exceeded 1 percentage point for three quarters while the 45-day current dollar estimates' revision exceeded 1 percentage point only once. The earlier estimates tend to understate quarterly changes as measured by the latest revised estimates for the period studied. This bias and the total extent of the revision tend to diminish from the 15-day to the first July estimates.

The graph on page 18 illustrates the differences in the quarter-to-quarter percent change in current dollar GNP measured by the 15-day, 45-day, and latest benchmark estimates. The total error (dispersion) is indicated by the area between the broken lines representing the earlier estimates and the solid line representing the benchmark estimates. The early estimates' negative bias is indicated by the broken lines lying below the solid line over most of the 13-year period. The error in the early estimates is most obvious for the later quarters of 1968 and 1971. The early estimates' negative bias is most obvious for 1974 through mid-1975.

Relative bias and relative dispersion for the GNP aggregates were also relatively small. The larger figures for constant dollar GNP's relative bias and relative dispersion are due to deflating the average change while the average revision remains relatively stable. In other words, the average percent change used to calculate the relative measures was deflated while the bias and dispersion of the average percent change, as those measures show, were unaffected by the deflation.

Quarter-To-Quarter Percent Change In
Gross National Product In Current Dollars
1968 - 1980



The GNP aggregates showed few directional misses. The constant dollar estimates missed the direction of change on three occasions or 6 percent of the quarters. All three of the misses occurred with the 15-day estimates. Current dollar GNP's 15-day and 45-day estimates each had one directional miss and the first July estimate of national income had one.

GNP error has increased
slightly over recent years

Further analysis of the GNP revisions indicates that the extent of revision has increased for the more recent years' estimates, but the increase has been slight. The revisions also tend to be relatively larger over periods of time experiencing more economic instability. However, the overall extent of error in the early GNP estimates measured by the revisions remains relatively small.

The results of our analysis were compared to those of previous BEA studies. ^{1/} The table on page 20 shows the summary measures of revisions to 45-day quarterly current dollar GNP from the three studies that covered different time periods. The comparison shows an increase in the extent of revision to the GNP estimates from BEA's latest study to the one performed by GAO. The two studies show that while the estimate's negative bias has not worsened, the dispersion or total estimation error has increased from the previous to the most recent study. The 45-day estimates' revisions were compared because Mr. Jaszi analyzed only 45-day compared to the latest estimates for the 1947-61 period.

^{1/}George Jaszi, "The Quarterly National Income and Product Accounts of the United States, 1942-62," in Studies in Short-Term National Accounts and Long-Term Economic Growth, ed. Simon Goldberg and Phyllis Deane, Income and Wealth, 11 (New Haven: International Association for Research in Income and Wealth, 1965) pp. 100-187. Allan H. Young, Reliability of the Quarterly National Income and Product Accounts of the United States, 1947-71, U. S. Department of Commerce Bureau of Economic Analysis Staff Paper No. 23 (Washington, D.C.: National Technical Information Service, July 1974).

Summary Measures of Revisions
in Quarterly Percent Change in 45-Day GNP Estimates

<u>Summary measures</u>	<u>Jaszi 1947-61</u>	<u>Young 1964-71</u>	<u>GAO 1968-80</u>
Bias	-.17	-.15	-.15
Dispersion	.68	.24	.39
Relative bias	-11.0	-8.0	-6.0
Relative dispersion	35.0	13.0	17.0
Directional misses (note a)	8	0	2

a/Expressed as percentage of quarters.

The increased error observed by our more recent study may be affected by the economy's behavior in the more recent years. According to BEA officials, estimating GNP is easier during periods of relative economic stability. Comparing the three periods studied, Jaszi's 1947-61 period had four recessions, Young's 1964-71 period had one recession, and our period had three recessions. The period analyzed by Young was the most stable and exhibited the smallest GNP revisions. With the period we analyzed being less stable, a larger extent of revision could be expected. During less stable times early projections for missing data are less likely to be correct.

The increase in error in the early GNP estimates over recent years is also evident when the summary measures of revisions for our 13-year period are calculated for two equal subperiods. Larger revisions occur in the more recent period. The following table shows revision measures for current dollar GNP calculated separately for 1968 to mid-1974 and mid-1974 to 1980. This analysis shows an increase in both the understatement (bias) and total error (dispersion) in the estimates for the more recent subperiod. It also shows that the 45-day estimates of GNP change are better than the 15-day estimates.

Summary Measures of Revisions in
Quarterly Percent Change in GNP
for GAO Study Subperiods

<u>Summary measures</u>	<u>15-day-latest</u>		<u>45-day-latest</u>	
	<u>1968-74</u>	<u>1974-80</u>	<u>1968-74</u>	<u>1974-80</u>
Bias	-.18	-.26	-.12	-.17
Dispersion	.36	.48	.33	.44
Relative bias	-8.0	-10.0	-6.0	-7.0
Relative dispersion	17.0	19.0	15.0	18.0

Another analysis compares the 45-day, first July, and second July current dollar GNP annual estimates to the benchmark estimates for the benchmark years. The analysis shows the earlier estimates for the most recent benchmark year less precise than for the previous benchmark years. The table below shows the annual GNP estimates for 1972 varied more from the benchmark year estimate than for 1967 and 1963.

Annual GNP Estimates as a Percent of the
Benchmark Estimates

<u>Benchmark years</u>	<u>45-day</u>	<u>1st July</u>	<u>2nd July</u>
1963	98.7	98.5	99.4
1967	99.0	99.6	100.1
1972	97.9	98.2	98.5

GNP error is reduced with
successive revisions

Early GNP estimates are subsequently revised to take advantage of additional statistical information. Preliminary data which are subsequently revised and data which were unavailable at the time the estimates were first prepared are used in the later estimates and in many cases replace the BEA estimators' judgment. Our analysis of quarterly and annual GNP estimates shows this process to be generally successful.

The Advisory Committee on GNP Data Improvement recommended that BEA institute a set of GNP estimates to be released 75 days after each quarter's end to provide a more accurate current quarterly GNP estimate. BEA began releasing the 75-day estimate with the third quarter of 1977. Our analysis shows that the additional revised estimate has provided a more accurate estimate

of quarter-to-quarter change in GNP. As shown in the table below, bias and dispersion calculated for the three early estimates of current dollar GNP indicate a gain in accuracy in the 75-day figures. We did not attempt to determine whether this gain is significant or the estimate current enough to be useful.

Summary Measures of Revisions in
Quarterly Percent Change in GNP
1977-1980

<u>Differently timed estimates</u>	<u>Bias</u>	<u>Dispersion</u>
15-day	-.19	.37
45-day	-.13	.35
75-day	-.10	.30

Our analysis of annual current dollar GNP estimates also shows the success of subsequent revisions and demonstrates the impact of the later available source data on the estimates. As shown in the table below, the bias and dispersion diminishes by over 50 percent from the 15-day to the third July revision. The amount of reduction in the revision measures from the first July to second July indicates the impact of introducing data from the Census Bureau's annual programs and the Internal Revenue Service's statistics of income program into the estimates.

Summary Measures of Revision in
Annual Percent Change in GNP
1968-1979

<u>Differently timed estimates</u>	<u>Bias</u>	<u>Dispersion</u>
15-day	-.47	.58
45-day	-.47	.57
1st July	-.34	.51
2nd July	-.15	.24
3rd July	-.10	.25

USERS ARE SATISFIED WITH GNP'S RELIABILITY

Although users have been dissatisfied with large GNP revisions in the past, users we contacted and those contacted by the Advisory Committee on GNP Data Improvement in 1973 were generally satisfied with the aggregate GNP estimates' reliability. The users, however, did identify certain GNP component estimates as being troublesome.

The 18 Federal and private users we contacted had no problems with the early GNP estimates' reliability for economic policy-making and forecasting. Many of the users routinely review the major monthly economic data used to estimate and revise GNP and are able to anticipate the direction of BEA's estimates and revisions.

Only three of the users identified instances where earlier estimates were misleading. Those instances, however, involved GNP components rather than aggregate GNP. Two users were concerned when revised data on investment spending for the late 1970s showed considerably larger levels than earlier estimates, and one recalled a large July 1974 upward revision to the fourth quarter of 1973 and the first quarter of 1974 early estimates of the change in business inventories. A recent report prepared for the Congressional Joint Economic Committee also indicated that the low investment estimates misled economic policy discussion in the Government. ^{1/} However, no user we contacted could define how the economy was affected by the wayward estimates.

The users we contacted were generally not familiar with GNP's complete data base or estimating methodologies. Users' lack of detailed knowledge of BEA's data sources and methods and their frustration when they need to know BEA's procedures caused the advisory committee to recommend that BEA prepare and publish a handbook of methods. BEA is presently preparing the handbook.

The users identified several GNP components as being troublesome. These included the change in business inventories, net exports, corporate profits, and farm proprietors' income components. Residential and nonresidential structures and State and local government purchases were also singled out as unreliable by more than one user.

^{1/}Maintaining the Quality of Economic Data, a study prepared for the use of the Joint Economic Committee, Congress of the United States, November 27, 1981, U.S. Government Printing Office, Washington, D.C., pages 10 and 11.

A survey of selected GNP users conducted by the advisory committee at the beginning of its evaluation in 1973 yielded similar results. The majority of the 59 users responding to the advisory committee's questionnaire viewed the early aggregate GNP estimate as not being troublesome. However, users did have concerns about the size of revisions to certain GNP components. The users most frequently identified the change in business inventories, net exports, corporate profits, and business fixed investment (nonresidential structures and nonresidential producers' durable equipment) as components with the most troublesome revisions. Users we contacted almost a decade later singled out the first three of these as having the weakest earlier estimates.

Users the advisory committee surveyed who had trouble with revisions described the problem differently. Some found redoing tables and charts to incorporate the revised data a nuisance. Others thought their initial forecast based on the early estimates was a wasted effort because it had to be revised. Some forecasters said that large revisions caused them to have to rethink changes in the economy. Some users, however, had no problem with revisions because they normally review much of the same monthly survey data that BEA uses to revise the early estimates.

Although users GAO and the advisory committee contacted were generally satisfied with GNP's reliability, on some occasions large revisions to the GNP estimates could have affected appraisals of the economy. During the 1968-80 period we analyzed, large revisions caused users' concern on five occasions. ^{1/} Each time, these revisions involved the components identified by users contacted by either us or the advisory committee. Corporate profits was the source of the large revision of July 1971. Revised data on nonfarm business inventories and retail trade was the source of the January 1972 revision. The inventories data again was the source of the July 1974 large revision. The July 1974 revision also involved a substantial revision to the farm proprietors' income estimates. Finally, the source of the large revision of July 1977 was changes in estimates of personal consumption expenditures for services, fixed investment, and nonfarm business inventories.

Users do not always become concerned about relatively large revisions. Our analysis showed that relatively large revisions occurred more frequently than the times users expressed concerns over the revisions. The 15-day change in nonfarm business inventories estimates' compared to the latest estimates had 8 out of 50 quarters with revisions greater than the absolute

^{1/}The nature of these revisions is further described in a GAO report entitled "A Primer on Gross National Product Concepts and Issues" (GGD-81-47, Apr. 18, 1981) page 24.

average change shown by the latest estimates. The 15-day farm proprietors' income and the 45-day corporate profits estimates had, respectively, 19 and 12 out of 50 quarters with revisions greater than the average change. Large revisions to these components are thus apt to occur more often than when users become concerned. The users' concerns about the revisions were raised for times when the economy was falling into or recovering from a recession, as was the case for the 1969 and 1973 declines and the 1970 and 1975 recoveries.

Our analysis shows that the GNP aggregates are revised on the average by small amounts and that users are seldom concerned about these revisions. The summary measures for the GNP aggregates, however, are based on the sum of the various components which make up the total. In summing the components, equally large negative and positive revisions could cancel themselves out and make the aggregate measure viewed alone appear reliable. Further analysis shows that many of the underlying GNP components, including those components identified as troublesome by users, are revised by relatively large amounts.

REVISIONS TO FOUR GNP COMPONENTS MOST AFFECTED GNP ESTIMATES

Although our analysis of the GNP aggregates showed small revisions, over half of the underlying components had relatively larger revisions. Four of these components account for a large part of the total revision. Two additional components comprising 12 percent of GNP's product side are lacking new or revised data to make quarterly estimates and are projected on the basis of past changes (trended). For that reason those components have relatively small revisions, and the size of revision is not an appropriate test of their reliability.

GNP components with relatively large revisions

The GNP components with relatively large revisions fall on both the product and income sides of the GNP account and include the majority of the 27 components. Most of the components' early estimates understated the quarter-to-quarter rate of change shown by the latest estimates (bias), by less than 1 percentage point. However, 13 components show a dispersion greater than 1 percentage point. The relative dispersion for 14 components was at least 50 percent and for 4 additional components, it was at least 30 percent. Twenty-one components had directional misses. Fifteen of these components had misses for at least 10 percent of the quarters, including 5 components at a rate more than 30 percent.

Product side

Most of the components on the product side of the GNP account as shown by the table on page 28 had relatively large average revisions when compared to revisions to the GNP aggregates. Seven of the 14 components show a dispersion greater than 1 percentage point for the differently timed estimates. The early figures for residential farm structures deviated most from the latest estimates. The change in farm and nonfarm business inventories and net exports components early estimates were together revised on the average by about \$7 billion or greater than the \$5.9 to \$6.6 billion average revision to the aggregate GNP for its early estimates. Percent change measures were not calculated for those three components. The early estimates for residential farm structures and net exports were the most biased; both tend to understate the change measured by the latest estimates. Durable goods had a dispersion near 1 percentage point for its differently timed estimates. The nondurable goods, services, and State and local purchases components were the series revised by comparatively small amounts.

Relative dispersion contrasts the amount of error in the early estimates with the change measured by the latest revised figures. It is considered one of the more stringent reliability tests and is used to assess revised Federal economic indicators' suitability for release in Statistical Policy Directive No. 3. Many of the series may exceed the Federal directive which states that the average revision should be small relative to the average change. For example, eight of the product side components had a relative dispersion greater than 50 percent and two additional components were greater than 30 percent.

State and local government purchases and personal consumption expenditures for services show considerably smaller average revisions than other product side components. The quarterly percent changes for those two components, however, are based in part on BEA's trending of annual estimates rather than on monthly or quarterly data observations. Trending assumes a constant quarterly rate of change to achieve some estimated annual rate of change. Currently about 29 percent of the value of services or 9 percent of GNP is based on a BEA trend. About 25 percent of State and local purchases or 3 percent of GNP is trended. The lack of forthcoming quarterly data upon which to base further revisions to the trended areas has a stabilizing influence on further revisions to the services and State and local purchases components. They are revised little because BEA estimators do not have data for quarters for which they are estimating. Minimal revisions in these cases may not indicate that the estimates are accurate.

Eleven of 14 product side components had directional misses. Seven of those components' earlier estimates missed the direction

of change in the economy at least 18 percent of the time for the 13-year period. These included nonresidential structures, residential farm structures, change in nonfarm and farm business inventories, net exports, and Federal defense and nondefense purchases. The 15-day estimates of farm business inventories missed the direction of change 46 percent of the time. For the 15-day estimates of residential farm structures, change in nonfarm business inventories, and net exports the estimates missed the direction of change at least 30 percent of the time.

The change in business inventories and net exports were two of the product side components which users we contacted identified as being troublesome. The behavior of these two components' early estimates is illustrated by the graphs on pages 29 and 30. The early estimates of the dollar change in the change in nonfarm business inventories, which impacts most on business inventory change revisions, differed most from the benchmark for the earlier years of the 13-year period. The early estimates for 1974 and later years tracked the movements in the series similar to the benchmark for most of the quarters covered. However, the 15-day estimates had noticeable directional misses in 1977 and 1980. The early estimates of net exports also differed most from the benchmark during the late 1960s and early 1970s, but during the mid and late 1970s the early estimates were either too high or too low by several billions of dollars on various instances.

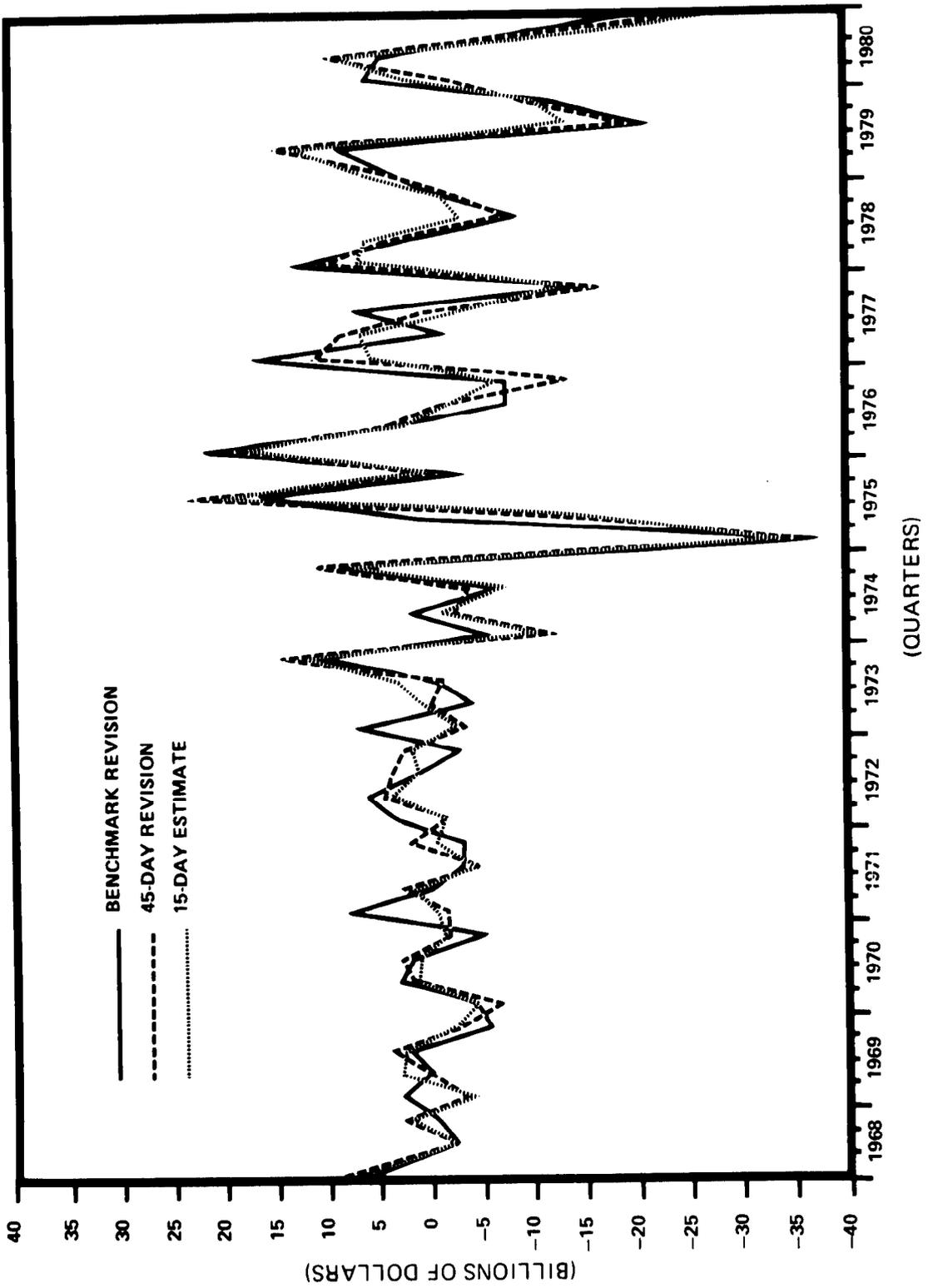
**Summary Measures of Revisions in Quarter-to-Quarter
Percent Change in GNP Product Side Components
1968-1990**

Product side components	Bias	Dispersion	Relative bias	Relative dispersion	Directional misses	
					(Number of quarters)	(Percent of total quarters)
Durable goods						
15-day-latest	-.22	.99	- 10.46	28.49	7	14
45-day-latest	-.18	1.06	- 8.50	30.51	7	14
1st July-latest	-.06	.97	- 3.14	29.26	4	10
Nondurable goods						
15-day-latest	-.12	.47	- 5.57	21.13	0	0
45-day-latest	-.06	.44	- 3.47	19.68	0	0
1st July-latest	-.05	.37	- 2.48	17.38	0	0
Services						
15-day-latest	-.14	.36	- 5.40	13.58	0	0
45-day-latest	-.12	.34	- 4.48	13.09	0	0
1st July-latest	-.17	.36	- 6.80	14.04	0	0
Nonresidential structures						
15-day-latest	-.40	1.93	- 16.02	69.36	12	24
45-day-latest	-.04	1.68	- 1.80	60.15	8	16
1st July-latest	-.06	1.46	- 2.67	53.70	5	13
Nonresidential producers' durable equipment						
15-day-latest	-.06	1.28	- 3.34	41.73	2	4
45-day-latest	-.04	1.25	- 1.67	40.93	3	6
1st July-latest	-.23	1.14	- 8.42	36.06	2	5
Residential nonfarm structures						
15-day-latest	-.61	2.33	- 25.51	44.90	6	12
45-day-latest	-.36	2.34	- 15.62	45.13	6	12
1st July-latest	-.04	1.57	- 1.10	29.85	4	10
Residential farm structures						
15-day-latest	- 4.45	21.85	- 65.37	87.63	16	32
45-day-latest	- 4.27	22.03	- 62.69	86.36	16	32
1st July-latest	- 3.98	17.94	- 52.67	63.74	9	23
Residential producers' durable equipment						
15-day-latest	-.45	5.00	- 18.21	177.79	2	10
45-day-latest	-.36	3.67	- 14.60	130.39	1	5
1st July-latest	-	-	-	-	-	-
<i>(note a)</i>						
Change in nonfarm business inventories						
<i>(note b)</i>						
15-day-latest	-.34	3.92	101.20	56.67	15	30
45-day-latest	-.25	3.86	73.65	55.86	13	26
1st July-latest	.06	3.90	14.29	61.37	12	31
Change in farm business inventories						
<i>(note b)</i>						
15-day-latest	-.17	1.44	220.51	112.64	23	46
45-day-latest	-.10	1.43	123.08	111.70	18	36
1st July-latest	-.02	.78	- 9.57	90.24	6	15
Net exports <i>(note b)</i>						
15-day-latest	- 1.00	2.61	- 123.27	56.94	17	34
45-day-latest	-.71	2.08	- 87.62	45.50	11	22
1st July-latest	-.10	1.53	- 25.33	45.43	7	18
Federal defense purchases						
15-day-latest	.27	1.39	23.96	66.92	9	18
45-day-latest	.14	1.31	12.36	62.99	9	18
1st July-latest	-.04	1.04	- 7.12	57.61	5	13
Federal nondefense purchases						
15-day-latest	.10	3.52	4.16	72.82	9	18
45-day-latest	.04	3.36	1.46	69.58	10	20
1st July-latest	-.03	2.17	- 1.41	52.28	6	15
State and local government purchases						
15-day-latest	-.07	.58	- 2.70	22.87	0	0
45-day-latest	-.04	.56	- 1.67	22.03	0	0
1st July-latest	.13	.48	5.16	19.07	0	0

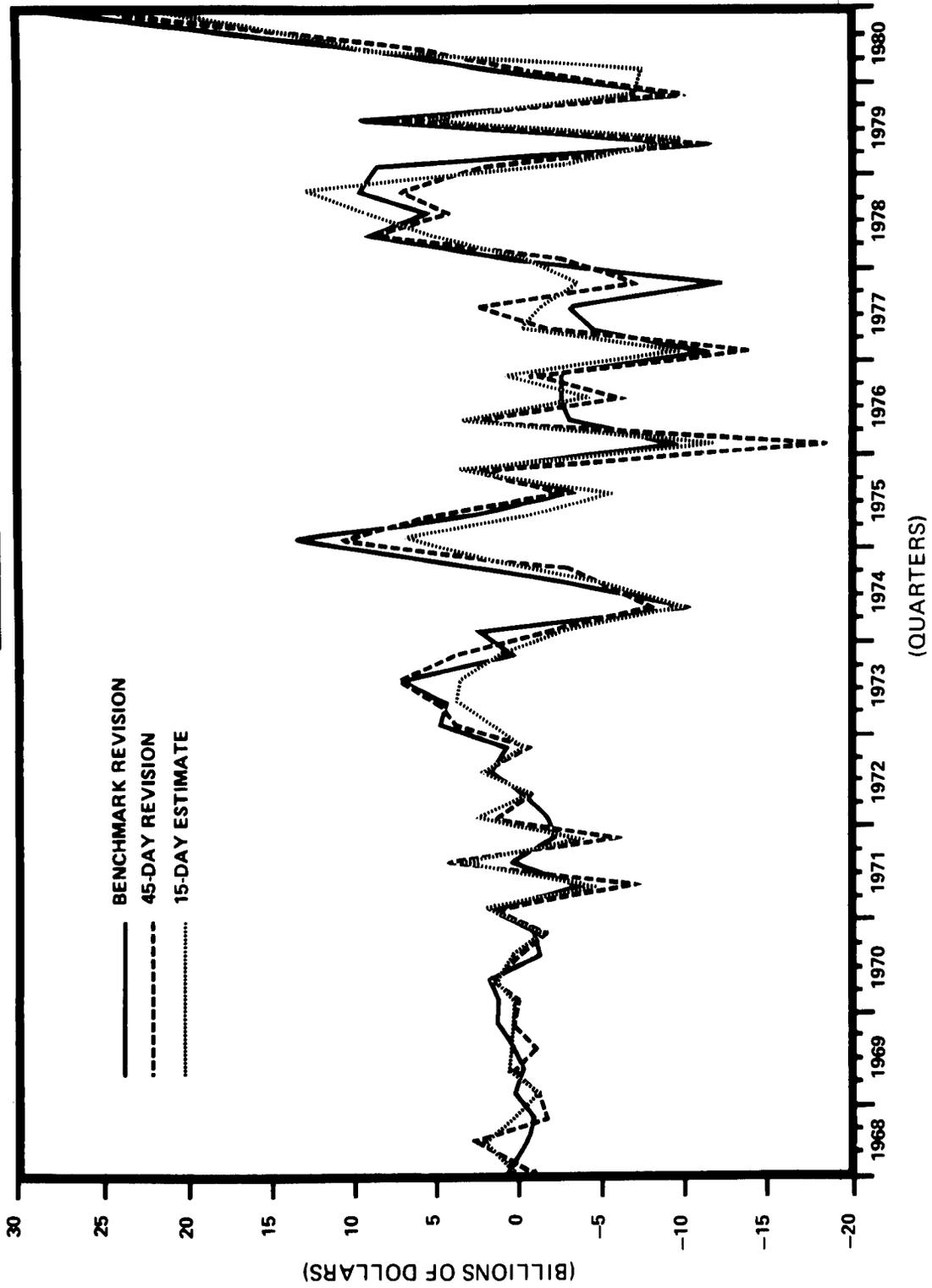
^{a/} Only two years of comparable estimates were available for residential producers' durable equipment and were not enough to prepare meaningful averages.

^{b/} Average revisions in dollar change were calculated for change in business inventories and net exports. Percent changes were not calculated because those series move above and below zero and may exhibit abnormal changes when viewed as percentages. Dollar changes provide a more realistic measure of change. Bias and dispersion are in billions of dollars.

**Quarter-To-Quarter Dollar Change In The
Change In Nonfarm Business Inventories
1968 - 1980**



Quarter-To-Quarter Dollar Change
In Net Exports
1968 - 1980



Income side

Six components on the income side of the GNP account also had relatively extensive revisions as shown by the table on page 32. Farm and nonfarm proprietors' income, rental income, corporate profits, net interest, and business transfer payments all show a dispersion greater than 1 percentage point. The 15-day farm proprietors' income and 45-day corporate profits estimates had the largest dispersion, about 8.5 and 3.4 percentage points, respectively. Corporate profits data are not available for the 15-day estimates. Six of the components had a dispersion less than 1 percentage point. Government and other wages and salaries showed the smallest dispersion--less than .35 percentage points for the 15-day estimates. Income side components with capital consumption adjustment were excluded from the analysis because their estimates were available only since 1976.

When relative dispersion is considered, the same income side components that have dispersion greater than 1 percentage point also have comparatively large relative dispersions, greater than 49 percent. The two components with the largest dispersions, farm proprietors' income and corporate profits, also have large relative dispersions. The 15-day farm proprietors' income estimates were revised by almost the same amount (98 percent) as the 8.6 average percent change in the series. The 45-day corporate profits estimates were revised by almost 67 percent of the 5.1 percent average change. These two components may also exceed the Federal guideline for published economic indicators as well as nonfarm proprietors' income, rental income, net interest, and subsidies.

Ten of 13 income side components had directional misses. The early estimates of farm proprietors' income, corporate profits, and subsidies most often missed the direction of change when compared to the latest estimates. The 15-day estimates of farm proprietors' income missed the direction of change 36 percent of the time while the 45-day estimates of corporate profits and the 15-day subsidies estimates' each missed 24 percent of the time.

Farm proprietors' income and corporate profits were two income side components identified by the users we contacted as being troublesome. The difficulty with these two components' early estimates correctly tracking movements in the economy is illustrated in the graphs on pages 33 and 34. The early farm proprietors' income estimates often failed to track movements measured by the benchmark. While the 15-day and the 45-day estimates were usually the same or very similar, the benchmark as shown differs by up to 27 percentage points with many opposite

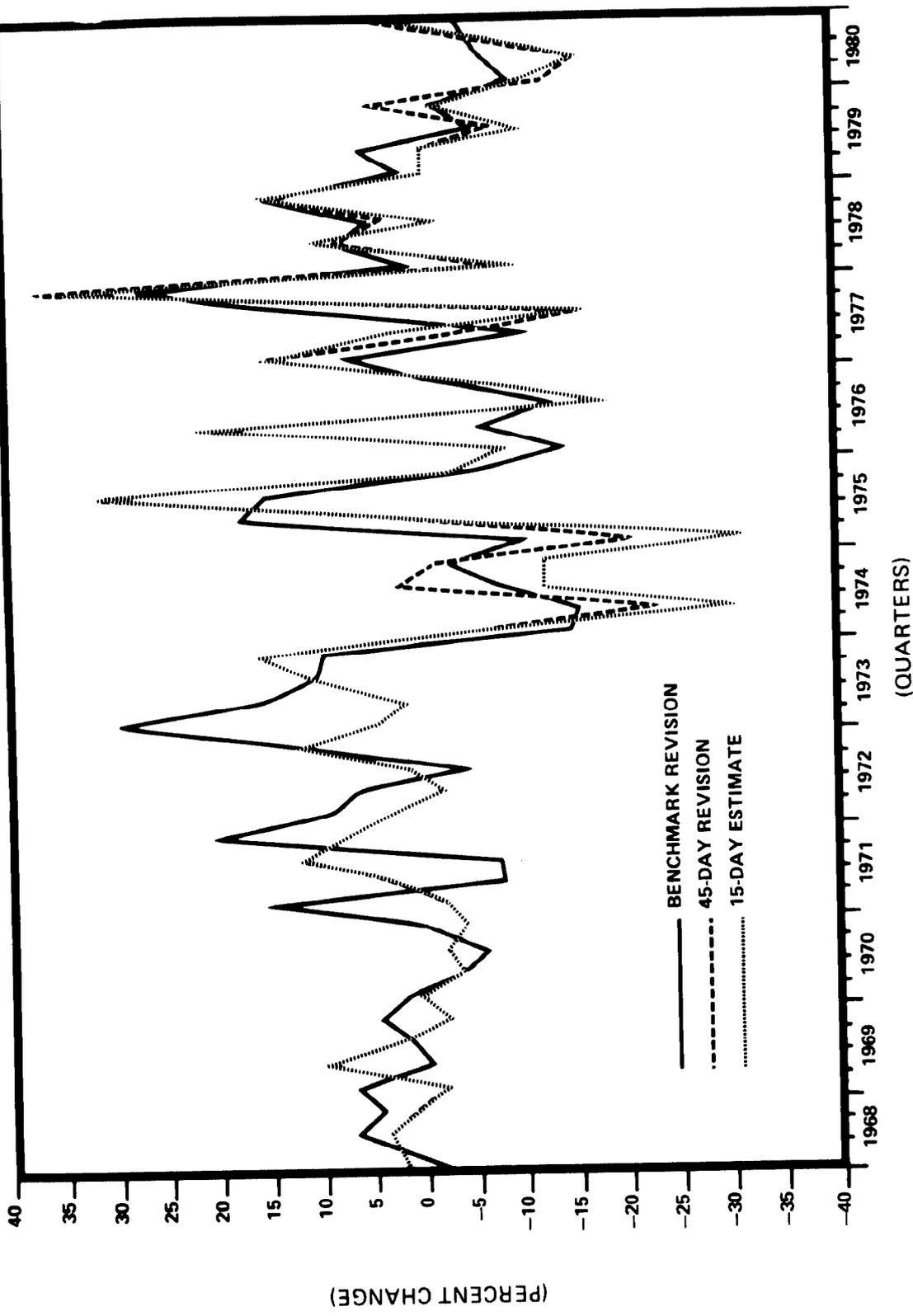
**Summary Measures of Revisions in Quarter-to-Quarter
Percent Change in GNP Income Side Components
1968-1980**

Income side components	Bias	Dispersion	Relative bias	Relative dispersion	Directional misses	
					(Number of quarters)	(Percent of total quarters)
Wages and salaries—						
government						
15-day-latest	-.06	.34	- 3.66	16.70	0	0
45-day-latest	-.02	.29	- 1.06	14.31	0	0
1st July-latest	-.10	.18	- 4.93	8.74	0	0
Wages and salaries—						
other						
15-day-latest	-.16	.28	- 6.91	12.15	1	2
45-day-latest	-.10	.26	- 4.60	11.36	1	2
1st July-latest	-.01	.20	- .33	8.46	1	3
Employer contributions for social insurance						
15-day-latest	-.16	.62	- 4.69	19.27	1	2
45-day-latest	-.12	.61	- 3.72	19.10	1	2
1st July-latest	-.01	.66	- .20	19.38	1	3
Other labor income						
15-day-latest	-.72	.85	-19.86	23.47	0	0
45-day-latest	-.72	.84	-19.83	23.36	0	0
1st July-latest	-.66	.85	-18.39	23.93	0	0
Farm proprietors' income with inventory valuation adjustment						
15-day-latest	-1.80	8.46	-65.45	98.35	18	36
45-day-latest	-.75	7.88	-35.85	91.70	18	36
1st July-latest	-.18	6.13	- 4.14	67.15	9	23
Nonfarm proprietors' income with inventory valuation adjustment						
15-day-latest	-.08	1.21	- 4.92	59.51	7	14
45-day-latest	-.04	1.17	- 2.45	57.43	8	16
1st July-latest	.35	1.06	21.80	59.90	6	15
Rental income of persons						
15-day-latest	-.31	1.44	-14.73	56.38	3	6
45-day-latest	-.29	1.46	-13.61	59.26	4	8
1st July-latest	-.52	1.49	-25.40	60.15	4	10
Corporate profits with inventory valuation adjustment (note a)						
45-day-latest	.07	3.40	3.31	66.39	12	24
75-day-latest	.16	3.15	7.83	61.48	10	20
1st July-latest	.47	2.43	15.73	45.80	18	21
Net interest						
15-day-latest	-.62	1.66	-16.38	49.10	1	2
45-day-latest	-.56	1.63	-14.86	48.16	1	2
1st July-latest	-.51	1.42	-16.29	44.57	1	3
Business transfer payments						
15-day-latest	-.41	2.12	-16.54	76.51	4	8
45-day-latest	-.39	2.14	-15.72	77.24	4	8
1st July-latest	-.46	2.11	-17.68	72.19	3	8
Indirect business tax and nontax liability						
15-day-latest	-.02	.43	- 1.14	19.88	0	0
45-day-latest	.07	.44	3.38	20.12	0	0
1st July-latest	.02	.30	1.05	13.76	0	0
Subsidies less current surplus of government enterprises (note b)						
15-day-latest	-.06	.58	-90.20	71.05	12	24
45-day-latest	-.01	.46	- 7.84	55.47	8	16
1st July-latest	.01	.36	9.52	45.45	6	15
Capital consumption allowances						
15-day-latest	-.59	.80	-24.19	31.83	1	2
45-day-latest	-.50	.85	-20.40	34.00	1	2
1st July-latest	-.28	.66	-12.51	28.11	0	0

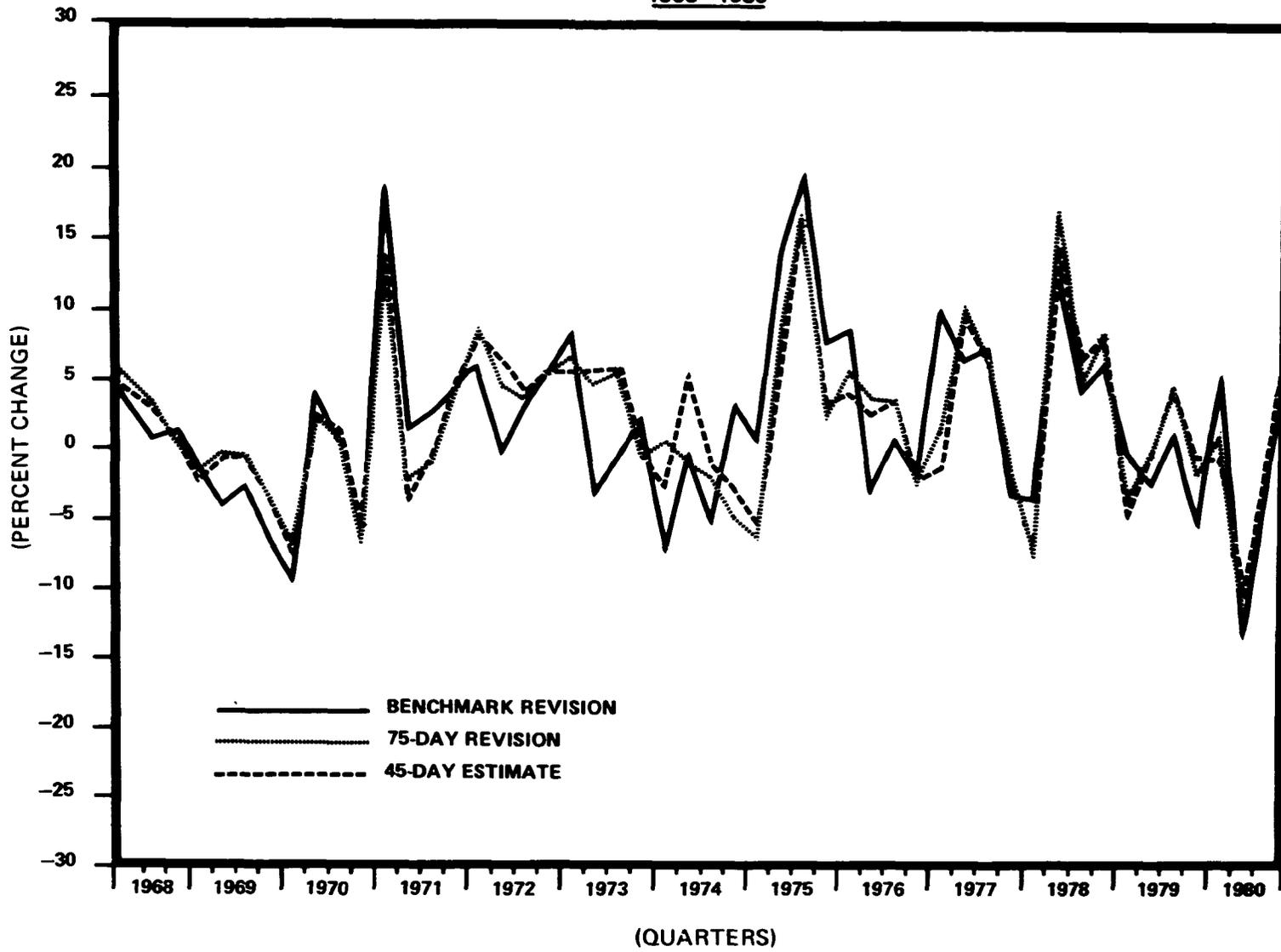
^a15-day estimates are not prepared for corporate profits; therefore, 45-day and 75-day estimates were analyzed.

^bAverage revisions in dollar changes were calculated for subsidies less current surplus of government enterprises. Percent changes were not calculated because this series moves above and below zero and may exhibit abnormal changes when viewed as percentages. Dollar changes provide a more realistic measure of change. Bias and dispersion are in billions of dollars.

Quarter-To-Quarter Percent Change
In Farm Proprietors' Income
1968 - 1980



Quarter-To-Quarter Percent Change
In Corporate Profits
1968 - 1980



changes from the early estimates. The early corporate profits estimates also failed to track movements measured by the benchmark. The most severe problems occurred for the early quarters of 1969, mid-1971 and 1972, early 1973, late 1974, early 1976, and early 1977. As with most of the GNP component series, the more recent estimates after 1977 appear to improve, but the early and benchmark estimates for those more recent quarters are both based primarily on the same source data.

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Revisions to year-to-year changes in GNP and component estimates, shown in appendix III, show generally the same pattern as the quarterly product and income estimates. The quarterly components with large revisions normally have large year-to-year change revisions, while the quarterly measures with small revisions also normally have small annual revisions. Appendix III also shows the summary measures and the range of revisions for the differently timed quarterly and annual estimates for the GNP aggregates and all the GNP account components we analyzed.

Four components contribute most to revisions

Only a few of the components that make up GNP account for a large part of the total revision. The total dollar amount of revision to each GNP component taken as a percentage of the total dollar amount for all of the components on each side of the GNP account, respectively, shows which components contribute most to revisions in the account for the 13-year period we analyzed. The tables on pages 36 and 37 show the distribution of the total revision for the product and income sides of the account and the components' relative size in GNP. The product side analysis is based on revisions to the 15-day and 45-day estimates. For the income side, revisions to the 45-day and first July estimates were used because they were more complete and comparable.

Four of the smaller components of the GNP account contribute most to the total dollar amount of revision. Revisions to the change in nonfarm business inventories and net exports together, which are about 2 percent ¹/_{of} of the GNP account's product side, accounted for about 32 percent of the total revision to the 15-day and 45-day estimates. Farm proprietors' income and corporate profits represent about 8.5 percent of GNP account's income side and accounted for over 40 percent of the total revision. About 30 percent of the total revision in the 45-day income side estimates

¹/The percent represents an absolute amount to present a more realistic picture of the size of the nonfarm business inventories and net exports components.

Distribution of GNP Product Side
Components and Revisions
1968-1980

<u>Product side components</u>	Percent of GNP (note a)	<u>Percent of total revision</u>	
		<u>(15-day)</u>	<u>(45-day)</u>
Durable goods	7.9	6.3	7.0
Nondurable goods	25.6	8.9	8.8
Services	30.3	8.2	7.9
Nonresidential structures	4.1	4.9	4.3
Nonresidential producers' durable equipment	7.1	7.0	7.2
Residential nonfarm structures	3.6	6.5	6.6
Residential farm structures	.1	1.0	1.1
Residential producers' durable equipment	.1	.2	.1
Change in nonfarm business inventories	- .5	19.6	20.7
Change in farm business inventories	- .1	7.2	7.7
Net exports	1.6	13.1	11.1
Federal defense purchases	5.0	5.7	5.8
Federal nondefense purchases	2.4	6.2	6.3
State and local government purchases	12.8	5.2	5.4

a/1980 third quarter GNP estimates.

Distribution of GNP Income Side
Components and Revisions
1968-1980

<u>Income side components</u>	<u>Percent of GNP (note a)</u>	<u>Percent of total revision</u>	
		<u>(45-day)</u>	<u>(1st July)</u>
Wages and salaries- government	9.6	3.2	2.8
Wages and salaries-other	41.1	11.5	11.9
Employer contributions for social insurance	4.4	2.4	2.9
Other labor income	5.3	3.5	4.1
Farm proprietors' income with inventory valuation adjustment	1.1	13.5	13.6
Nonfarm proprietors' income with inventory valuation adjustment	4.2	5.9	7.1
Rental income of persons	2.5	3.7	5.3
Corporate profits with inventory valuation adjustment	7.4	29.9	26.8
Net interest	7.0	9.9	8.8
Business transfer payments	.4	1.0	1.3
Indirect business tax and nontax liability	8.2	4.1	3.6
Subsidies less current surplus of government enterprises	.2	3.3	3.7
Capital consumption allowances	8.6	8.1	8.1

a/1980 third quarter GNP estimates excluding the statistical discrepancy.

was attributed to corporate profits alone. Other wages and salaries, net interest, and capital consumption allowances component revisions also had a large relative effect on the total income side revisions.

Possible sources of error in
the most troublesome components

Given the extent of revisions to the four components--change in nonfarm business inventories, net exports, farm proprietors' income, and corporate profits--improving their reliability may offer the greatest opportunity for reducing the size of future GNP revisions. Overall GNP improvement, however, may also require closing important data gaps in the early estimates. While our revisions analysis shows the apparent weaknesses in those four components' early estimates, our analysis further shows that the personal consumption expenditures for services and State and local government purchases components, which are not excessively revised, are also of questionable reliability because of the lack of data needed to prepare and revise the estimates. Parts of those two components which lack subannual data and are projected on the basis of past changes account for 12 percent of the GNP account's product side.

The possible sources of error in those six components include the basic source data, adjustments made for coverage and definitional differences between the data and GNP requirements, adjustment for seasonal variation, and BEA's projections for missing data. Additional analysis of the components provides some insight to the problems.

Census Bureau data contributes
to nonfarm business inventories
revisions

The source of the relatively large revisions to the change in nonfarm business inventories has been identified as the Census Bureau's inventory data. According to a Census Bureau official, "Measurement of inventories and their changes has always been one of the most troublesome problems in economic statistics* * *." The Advisory Committee on GNP Data Improvement found that the large revisions in the change in nonfarm business inventories resulted from the revision of Census Bureau manufacturing and trade inventories data as distinct from the inventory valuation adjustment prepared by BEA.

BEA officials also view the Census Bureau's manufacturing and trade book value inventories data as the predominant source of the large revisions to the change in nonfarm business inventories measured in early GNP estimates. BEA provided a comparison of the GNP component and Census Bureau data to demonstrate the point. According to BEA officials, the following table

indicates that the revisions in annual GNP change in nonfarm business inventories resulted largely from revisions of the Census Bureau's book value estimates of manufacturing and trade inventory change. Over recent years the Census Bureau has made improvements to its inventory data, but problems remain. Reporting for the Census Bureau's monthly survey is voluntary and many businesses do not keep monthly inventory records.

Comparison of Annual 45-Day and Benchmark
Estimates of Inventory Change in Census
Bureau's Data and GNP
1972-1978

<u>Year</u>	<u>Revision to GNP</u> <u>change in nonfarm</u> <u>business inventories</u>	<u>Revision to Census Bureau change</u> <u>in book value manufacturing</u> <u>and trade inventories</u>
	------(billions)-----	
1972	\$-4.0	\$-3.7
1973	-7.9	-6.3
1974	-4.1	-6.1
1975	-6.0	-7.6
1976	-2.0	-4.7
1977	-3.8	-5.2
1978	-5.4	-4.7

Seasonal adjustments and lack of data
are primary cause of net export revisions

According to a BEA official, large revisions to quarterly net exports result from revised seasonal adjustment factors for merchandise exports and imports data and the lack of early data on other exports and imports. Our analysis of revisions to the subcomponents behind the net exports estimates confirms that the revisions cannot be attributed solely to revisions to the Census Bureau's merchandise exports and imports statistics, to BEA service and income trade data programs (other exports and imports), nor to either exports or imports estimates. The revisions to net exports as shown in the following table are affected by revisions to all of these.

Dispersion in Quarterly 15-Day, 45-Day, and 75-Day
Compared to Latest Estimates of Percent Change in Net
Exports Components
1976-1980
(note a)

<u>Net exports components</u>	<u>15-day</u>	<u>45-day</u>	<u>75-day</u>
Exports of goods and services	1.29	.90	.92
Merchandise exports	1.79	1.07	.84
Other exports	2.04	1.81	2.03
Imports of goods and services	1.61	1.33	1.19
Merchandise imports	2.22	1.61	1.55
Other imports	2.02	1.74	1.69

a/The 4-year period covers the second quarter of 1976 to the second quarter of 1980. Data was not available prior to 1976 to make the definitional changes for the detailed sub-components.

Census Bureau monthly data on export and import merchandise trade are the only source data used for estimating merchandise exports and imports in GNP. For this reason a BEA official believes updating seasonal adjustment factors causes large merchandise revisions. The reduction in the dispersion for exports and imports from the 15-day estimate to the 75-day estimate results from introducing complete data for all 3 months of the quarter. Much of the remaining difference between the 75-day and the latest estimate and any subsequent revisions to the early estimates results from revising seasonal adjustment factors. According to a BEA official, the volatility of the merchandise trade series results in large revisions to the seasonal adjustment factors. The current state of the art in seasonally adjusting time series, the official noted, presents no solution to the problem of large revisions caused by updating seasonal factors. Any additional revision of the merchandise trade estimates may be due to reconciling United States and Canada export and import data. The advisory committee recommended that a more extensive bilateral merchandise trade reconciliation program with Canada, which had been done in the past, be restored.

Early estimates of other exports and imports are revised by relatively large amounts because the early estimates are "guesstimates" rather than based on actual data. The 15-day figures for

these subcomponents are BEA's projections, while the 75-day estimates are based on preliminary figures from BEA's services and investment income trade programs. Final data from the BEA programs are not brought into the estimates until the first July revision. According to BEA, seasonal adjustments to other exports and imports are stable and do not have a large effect on revisions.

Farm proprietors' income projections
lack adequate estimation methods

Prospects for obtaining good quarterly farm proprietors' income estimates are dim. The present quarterly estimates are projections based on annual survey data prepared for GNP by the Department of Agriculture's Economic Research Service. According to Service officials, the quarterly farm income estimates are based on predictions of farm output, prices, and production expenses. Given the nature of farming, which is seasonal and affected by unpredictable occurrences such as weather and pests, actual output, prices, and expenses may vary considerably from earlier predictions.

Economic Research Service officials also believe that collecting quarterly data from farmers could be a futile effort. Farm operations differ at various times of the year. Expenses are incurred at different times for different crops in different regions. Furthermore, farmers would not be prepared to report quarterly. For this reason the Department of Agriculture times its annual economic survey of agriculture so that it is done after farmers have prepared their tax returns. Some quarterly data probably could be collected, but a quarterly farm survey would be different from other business surveys. Different information would be reported in different quarters. BEA officials' contend that the farmers' reporting problem is the only valid reason why a quarterly farm survey could not be done.

The current quarterly farm proprietors' income and inventories projections being prepared by the Economic Research Service for BEA are not used by the Department of Agriculture. According to Service officials, preparing the quarterly estimates is a statistical exercise which is done solely for BEA.

Corporate profits data are not
adequately defined to use in GNP

Large revisions of quarterly corporate profits estimates were the result of inadequately defined rather than inaccurate data. Our analysis of revisions to corporate profits by industry estimates, which are based on different data sources for different industries, shows that no one data source is dominant in contributing to the revision. Except for data on Federal Reserve banks, all of the industry data shown in the following table are revised by relatively large amounts.

Dispersion in Quarterly 75-Day Compared to the Latest
Estimates of Percent Change in Corporate
Profits By Industry
1976-1980
(note a)

	Percent of total corporate profits (note b)	<u>Dispersion</u>
Domestic industries	84.2	3.79
Financial	14.7	3.33
Federal Reserve banks	5.8	.85
Other	8.9	5.09
Nonfinancial	69.5	4.12
Manufacturing	35.0	5.31
Wholesale and retail trade	10.4	12.59
Transportation, communications, and electric, gas, and sanitary services	11.5	7.05
Other	12.7	4.64
Rest of world	15.8	6.73

a/The 4-year period covers the first quarter of 1976 to the second quarter of 1980. Data was not available prior to 1976 to make the definitional changes for the detailed sub-components.

b/1980 third quarter corporate profits estimates.

According to BEA officials, the large revisions to corporate profits result from the early estimates being based on book profits while the later revised estimates are based on tax return profits reported to the Internal Revenue Service. For GNP's use, tax return profits are appropriately defined and are available for all industries. Book profits data, however, which are prepared for shareholder's reports, are not available by industry and must be adjusted to the tax return definition. To make this adjustment for the earlier estimates accurately, BEA needs information that explains how and why book profits differ from tax profits.

Services and State and local
government purchases lack
sufficient data

Personal consumption expenditures for services and State and local government purchases are two components having large data gaps. Sizable portions of their quarterly estimates, 29 and 25 percent, respectively, are trended or, more precisely, are projected on the basis of past changes. Federal economic data, particularly in the service industries, as expressed in the comment of an economist testifying on the quality of Federal statistics before the House Subcommittee on Census and Population on March 16, 1982, are like an ancient map: they contain large unexplored areas.

The problems with the services and State and local purchases data base as outlined in the Advisory Committee on GNP Data Improvement's report is the lack of monthly or quarterly data and the reliance on trending. In the services area, no data exist on professional services, nonprofit organizations, tenant rentals, and private education services. Aside from payroll and construction spending, few monthly or quarterly data exist on purchases of State and local governments. As a result, the quarterly GNP estimates of services and State and local government purchases are based heavily on trends and judgment.

CONCLUSIONS

The average amount of revision to the aggregate GNP estimates has been relatively small and has remained stable over the years. However, the small GNP revisions could be influenced by larger offsetting revisions to the components of GNP. For that reason, the size of the revisions to the aggregate GNP estimates should not be viewed alone to attest to GNP's reliability. Over one-half of the components which make up the GNP account have been revised by larger amounts than aggregate GNP. Paramount among those, four components--the change in nonfarm business inventories, net exports, farm proprietors' income, and corporate profits--contribute a large part to the total revision. The reliability of changes indicated by these components' early estimates is questionable since during our 13-year study period their average revisions were large compared to the rate of change shown by their latest estimates.

Revisions analysis has limitations and should not be considered as a complete test for reliability of the GNP components. Certain components showing relatively small revisions, such as personal consumption expenditures for services and State and local government purchases, are based heavily on trending. Without data to make the early estimates, the reliability of those component estimates is uncertain.

The GNP estimates improved with the availability of additional information, but the earlier estimates tended to be less reliable during periods of economic instability. Reliable estimates are more difficult to provide when the economy is experiencing change, such as going into or recovering from a recession. In such situations, early projections for missing data are more difficult to correctly anticipate.

GNP users have been occasionally concerned about revisions. Although the concerns were infrequent, the revisions involved occurred when the economy was falling into or recovering from a recession. Users we contacted had no problems with the size of revisions to aggregate GNP for policymaking and forecasting, although they did identify the four components shown by our revisions analysis to have relatively large revisions as being troublesome. The users were generally not familiar enough with the statistical and methodological machinery underlying the GNP to judge the need for detailed improvements to the source data.

Revisions analysis, which BEA has conducted in the past, is a useful tool for BEA to identify problem components in the GNP account. An analysis such as the one performed by GAO, which is more limited in scope than BEA's prior evaluations in regards to the components covered and estimates compared, could complement BEA's more extensive studies and be performed after each benchmark revision to provide data on a more current basis on improvements needed. See page 46 for the principal differences between GAO's limited analysis and BEA's more detailed analysis.

Revisions analysis could be a more useful management tool if guidelines were available to determine acceptable margins of error for GNP and its components' estimates. The guidance provided by Statistical Policy Directive No. 3, administered by OMB's Office of Information and Regulatory Affairs, which is for principal Federal economic indicators, is too general for determining the limits of acceptability for revisions to the GNP estimates. For example, our analysis showed the early estimates of many GNP components are revised on the average somewhere between 50 and 100 percent of the change measured by those components' latest estimates. The policy directive provides that the revision should be small relative to the change being measured, which could be interpreted to mean that the early estimates of many of GNP's components are unacceptable.

Research is needed to determine the feasibility of developing guidelines for acceptable revisions to the GNP estimates. The guidelines would not be expected to serve as precise standards, but rather as a flag for BEA management to consider the need and practicality of improving the GNP estimates. Other factors to consider would include the significance of the GNP component affected relative to other GNP components, the needs of users,

the cost of the improvement, and the likelihood of significantly improving the quality of the estimate.

RECOMMENDATIONS TO THE
DEPARTMENT OF COMMERCE AND
THE OFFICE OF MANAGEMENT
AND BUDGET

We recommend that the Secretary of Commerce and the Director, OMB, determine the feasibility of developing guidelines of acceptability for the GNP estimates and its components. We believe Commerce should take the lead in this project because of BEA's expertise in developing estimates of GNP. Also, the development of guidelines should consider the views of selected government and private users of the estimates.

Also, we recommend that the Secretary of Commerce direct BEA to conduct and publish periodic analyses of the GNP account estimates, including an analysis of the revisions similar to the one performed by GAO, to determine the need for improvements and to evaluate the success of improvements already made. Such analyses should identify the sources of error in components needing improvement and be performed minimally following each benchmark revision.

AGENCY COMMENTS AND OUR
EVALUATION

Commerce and OMB agreed that attempting to develop guidelines for acceptable revisions to the GNP estimates and its components would be worthwhile. (See app. IV and V.) Commerce cautioned us on the problems in attempting to measure the error in GNP estimates that would place limitations on the usefulness of guidelines for acceptable quality of the estimates. The problem of measuring total error in the estimates and other limitations of analyzing revisions to the GNP estimates are recognized in the objectives, scope, and methodology section of our report (p. 68) and pages 12, 14, and 15 of chapter 2. The fact remains that analyzing the revisions is the most quantifiable method of identifying data weaknesses, as OMB and BEA recognize. BEA has used revisions analysis for two previous studies to assess the reliability of the GNP estimates.

If guidelines can be developed, the problems of assessing the significance of evaluation results and prioritizing the improvements needed would be helped. For example, in our analysis of the revisions there was no established guide to use in determining whether the total GNP or any one of its components' estimates were unacceptable. Our analysis showed some component estimates were revised by relatively large amounts, but there was no gauge to compare the components' revisions against to determine whether a problem or potential problem might exist. The establishment of quantitative guidelines could act as a catalyst, the first step

in flagging estimates of questionable reliability so that inquiries will be initiated to determine whether improvements can be made and whether their costs are reasonable in light of the potential improvements expected. Because of the limitations of revisions analysis, BEA may wish to include in the guidelines other indicators for flagging questionable estimates such as whether current data are available to prepare quarterly estimates, and indicators of the quality of data that are available such as its completeness, relevancy, and timeliness.

Concerning the frequency to evaluate the quality of the GNP estimates, Commerce commented that a full-scale review of the revisions may be more appropriate every 10 years rather than every 5 years, given the limited number of quarterly observations (20) between each benchmark. A full-scale review of the revisions would entail (1) reviewing additional component series beyond those reviewed by GAO, (2) analyzing a longer time period (beginning with 1947), and (3) comparing additional variations of the component estimates, such as 15-day to 45-day, 75-day, and first July, whereas GAO only compared each differently timed estimate to the latest available.

We agree that a full-scale review of the revisions would be preferable every 10 years, and we have clarified our earlier proposal to show that we were referring to a more limited analysis as performed by GAO. The limited analysis we envisioned need not be limited to only those periods between the benchmarks but could include, for example, the last 10 years since the most recent benchmark with focus on the most current 5-year period. Such an analysis conducted after each benchmark would (1) provide current information for supporting GNP data needs, (2) help to monitor the impact of changes in the statistical environment, such as budget cuts to statistical programs and their impact on the GNP estimates, and (3) provide users with the errors associated with the major components on a more timely basis.

Commerce and OMB pointed out that the scope of our work would not provide a comprehensive listing of improvements needed for the GNP estimates because of the limitations of revisions analysis. As previously stated, our report acknowledges the limits and advantages of revisions analysis as an evaluation tool.

OMB identified several weaknesses in data that it believed would not be detected by revisions analysis, such as adjustments to data for inadequate coverage and biases introduced through imputations for missing data values. To the extent that improved data becomes available for the differently timed GNP estimates, revisions analysis will detect how well BEA compensates for the potential data problems that OMB believes are not considered by our evaluation. See pages 1 through 6

for an explanation of the differently timed GNP estimates and the availability of more complete data to revise earlier GNP estimates. Small revisions to the earlier estimates may mean that BEA's adjustments are adequately overcoming the data deficiencies and that improvements to the source data may not be necessary.

Related to OMB's point on data deficiencies not being detected by revisions analysis, Commerce pointed out that there are GNP components that have small revisions because of the lack of monthly or quarterly data to produce revised estimates. Our report on pages 38 and 62 recognizes that such components are important to consider for GNP data improvements.

Commerce commented that our report focuses exclusively on the need for improved source data and how cutbacks are damaging the estimates and does not recognize the greater damage to GNP's usefulness caused by a slowdown or cessation of developmental work. The scope of our work focused on the GNP estimates as presently defined. It did not include reviewing developmental work to improve the GNP estimates, such as conceptual changes. Chapter 7 of our report "A Primer on Gross National Product Concepts and Issues" GGD-81-47, April 8, 1981, discusses conceptual issues for GNP, such as including in the estimates the value of non-market production of households and goods and services produced by the subterranean economy. Among the developmental work, the Deputy Director, BEA, noted that measuring the subterranean activity is now its highest priority. Research is important and should be considered in any comprehensive ranking of opportunities to improve the GNP estimates. The recommendations on page 63 of our report, in accordance with the scope of our work, are directed at determining the feasibility, worthiness, and affordability of improving those portions of the existing GNP data base that are problems or concerns for BEA as identified by our study. It would be expected that Commerce would in the grand scheme of its operations weight the importance of these GNP improvements against other activities to benefit the GNP estimates.

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The results of our revisions analysis show which GNP components contribute most to revisions to the GNP estimates. The following chapter reviews the overall status of the Advisory Committee on GNP Data Improvement's recommendations to improve the underlying data used in estimating GNP. Emphasis is placed on those recommendations directed at the components we found most troublesome.

CHAPTER 3

THE BUREAU OF ECONOMIC ANALYSIS SHOULD BE THE FOCAL POINT FOR EFFORTS TO IMPROVE GNP ESTIMATES

OMB's Office of Information and Regulatory Affairs and its predecessor's oversight of the implementation of the recommendations made by the Advisory Committee on GNP Data Improvement has been less than effective in assuring the most needed improvements were made. Twenty-four Federal agencies have been largely on their own to implement the recommendations with little guidance as to their relative importance. Overall, implementation of the recommendations has not proceeded according to the 6-year time schedule the advisory committee established for OMB. As of February 1982, 106 of the 155 recommendations were not implemented, including the majority of the 74 recommendations to improve the data for those GNP components identified by GAO as having the largest revisions or data gaps. Not only has progress been poor in improving the GNP source data but reductions have been made to the statistical programs of the various Federal agencies which provide the GNP data because of recent budget cuts.

Unless management changes are made to place BEA in a leadership role, it is unlikely that the most important improvements, or any improvements, will be made in the future. BEA has the expertise to determine and justify improvements that could be made to the numerous source data used for producing GNP estimates. Information is needed on the cost of improvements recommended by the advisory committee and gains anticipated to decide on the merit of funding improvements to GNP's data base.

LITTLE PROGRESS MADE IN IMPLEMENTING THE ADVISORY COMMITTEE'S RECOMMENDATIONS

Of the 155 recommendations made by the advisory committee in its 1977 report, 106 have not been implemented. Of the remaining 49 recommendations, 37 have been fully implemented and 12 partially implemented. The table on page 49 shows the status of the recommendations by Federal agencies as of February 1982. Appendix II provides the status of each recommendation by Federal agency and the GNP component estimate affected.

Seventy-four of the advisory committee's recommendations, almost one-half, were directed at the GNP components we found most troublesome--nonfarm business inventories, net exports, farm proprietors' income, corporate profits, and parts of personal consumption expenditures' services and State and local government purchases. Twenty-two of those 74 recommendations have been either fully or partially implemented. The table on page 50 shows

Status of the Advisory Committee on
GNP Data Improvement's Recommendations
by Federal Agencies

<u>Federal agencies</u>	<u>Number</u>	<u>Status</u>		
		<u>Implemented</u>	<u>Partially implemented</u>	<u>Not implemented</u>
Department of Commerce				
Bureau of the Census	64	15	3	46
Bureau of Economic Analysis	24	7	3	14
Industry and Trade Administration	1	0	0	1
Department of Defense				
Corps of Engineers	1	0	0	1
Office of Assistant Secretary of Defense	3	1	0	2
Department of Labor				
Bureau of Labor Statistics	11	0	4	7
Employment and Training Administration	1	1	0	0
Labor-Management Services Administration	1	0	0	1
Department of Treasury				
Internal Revenue Service	6	1	1	4
Comptroller of the Currency	1	0	0	1
Bureau of Alcohol, Tobacco, and Firearms	1	0	0	1
Office of Assistant Secretary (International Affairs)	2	0	0	2
Department of Agriculture				
Economic Research Service	3	3	0	0
Statistical Reporting Service	15	3	0	12
Department of Health and Human Resources				
Health Care Financing Administration	3	2	0	1
Social Security Administration	2	0	0	2
Interstate Commerce Commission	2	0	0	2
Federal Home Loan Bank Board	1	1	0	0
Department of Energy				
Energy Information Administration	2	1	1	0
Federal Reserve Board	3	1	0	2
Federal Deposit Insurance Corporation	1	0	0	1
Office of Management and Budget				
Office of Information and Regulatory Affairs	3	1	0	2
Office of Federal Procurement Policy	1	0	0	1
Federal Trade Commission	3	0	0	3
Totals	<u>155</u>	<u>37</u>	<u>12</u>	<u>106</u>

the status of those recommendations and the agencies expected to make the data improvements. The largest number of recommendations are directed to the Census Bureau, BEA, the Internal Revenue Service, and the Statistical Reporting Service.

Status of Advisory Committee Recommendations
Addressing Troublesome GNP Components

<u>Federal agencies</u>	<u>Change in nonfarm business inventories</u>	<u>Net exports</u>	<u>Corporate profits</u>	<u>Farm proprietors' income</u>	<u>Personal consumption expenditures for services (part)</u>	<u>State and local government purchases (part)</u>	<u>Totals</u>
Bureau of the Census	13(2)(1)	5			7(3)	3	28 (5)(1)
Bureau of Economic Analysis	3 (1)	5(2)					8 (2)(1)
Industry and Trade Administration		1					1
Office of Assistant Secretary of Defense		2(1)					2 (1)
Bureau of Labor Statistics		1			1		2
Internal Revenue Service	1(1)		1	1	1 (1)		4 (1)(1)
Comptroller of the Currency			1				1
Office of Assistant Secretary (International Affairs)		2					2
Economic Research Service				3(3)			3 (3)
Statistical Reporting Service				14(3)			14 (3)
Health Care Financing Administration					2(2)	1	3 (2)
Federal Home Loan Bank Board			1(1)				1 (1)
Energy Information Administration			1 (1)				1 (1)
Federal Reserve Board			1				1
Federal Deposit Insurance Corporation			1				1
Federal Trade Commission	1		1				2
Totals	<u>18(3)(2)</u>	<u>16(3)</u>	<u>7(1)(1)</u>	<u>18(6)</u>	<u>11(5)(1)</u>	<u>4</u>	<u>74(18)(4)</u>

Legend: () Fully implemented
[] Partially implemented

The total recommendations implemented are almost evenly divided between the six components we identified as most troublesome and other components. Eighteen of the 37 fully implemented recommendations and 4 of the 12 partially implemented recommendations addressed five of the six components we identified. The remaining 19 fully implemented and 8 partially implemented recommendations affected 10 other components. Four of those 19 implemented recommendations fell into a category which did not address any one specific component, such as preparing 75-day GNP estimates. The following table shows the distribution of the recommendations already implemented to improve the GNP components that did not fall into the category of most troublesome.

Recommendations to Improve Other GNP Components

<u>GNP components</u>	<u>Implemented</u>	<u>Partially implemented</u>
Durable and nondurable goods	2	2
Personal consumption expenditures for services (part)	4	2
Residential nonfarm structures	1	
Nonresidential structures	3	
Producers' durable equipment		2
Federal defense spending	1	
Wages and salaries-other	1	1
Employer contributions for social insurance	2	
Capital consumption allowances	1	
Other	<u>4</u>	<u>1</u>
Totals	<u><u>19</u></u>	<u><u>8</u></u>

FEDERAL AGENCIES HAVE NOT AND IN ALL LIKELIHOOD WILL NOT IMPLEMENT ALL THE RECOMMENDATIONS

The Federal agencies to whom the advisory committee's recommendations were made could not or were not willing to implement most of the recommendations because the improvements were either

not needed for their purposes, because of lack of funding, and/or because of data collection difficulties. According to agency officials, they have generally implemented those recommendations which involved minimal cost, benefited the agency's own mission, and/or could be easily implemented. Most of the improvements made were already recognized by the agencies as changes needed for their programs. The majority of the recommendations which address the six components we have identified as most troublesome are among those that have not been implemented.

Cost data on those recommendations that have not been implemented as well as those that have been implemented were generally not available. Cost data was not developed in those cases where the implementation of the improvement was not being pursued or not easily identifiable. Cost estimates provided by agencies were based mainly on their educated guesses or were not current, some dating back to the mid-1970s. Although cost were generally considered minimal for those improvements which have been made, it could not easily be determined in most cases either because the improvement made for GNP was part of a much larger improvement project or it was absorbed in the agency's existing program. In fact, most of the costs for these improvements were absorbed by the agencies within their existing funding.

The recommendations which have not been implemented focus mainly on the Census Bureau, BEA, the Statistical Reporting Service, the Bureau of Labor Statistics, and the Internal Revenue Service. Those five agencies account for almost 80 percent of the recommendations which have not been implemented and 81 percent of those addressing the most troublesome GNP components. Fifteen additional agencies account for the remainder. The agencies' plans, if any, for implementing the advisory committee's remaining recommendations and cost data available follow. The cost data in many cases represent a "guesstimate" and should be used with caution.

Bureau of the Census

Census Bureau officials cited lack of funds as a major reason for not implementing 18 of 46 recommendations. Seventeen were rejected, in part, due to data collection difficulties. For example, the Bureau's 1976 Recordkeeping Practices Survey, conducted as part of the 1977 economic censuses program, showed that at least three improvements could not be made because companies either did not have the information or did not maintain records which would allow the collection of data as the advisory committee recommended. Other recommendations directed to the Bureau were not implemented, according to agency officials, due to little interest by other users, alternative proposals, respondent burden, and other miscellaneous reasons, such as low agency priority and legislation which precluded data collection.

The Bureau requested funds for GNP data improvements for fiscal years 1977 through 1981, but all were rejected by the Congress. No funds were requested for fiscal years 1982 and 1983. The House of Representatives Committee on Appropriations denied the Bureau's 1980 request for \$1.9 million to improve the quality of data used in developing the GNP estimates because it was not convinced by the Bureau's presentation that problems in the GNP estimates were of sufficient magnitude to warrant such a request. Included in the request was \$206,000 for restoring the bilateral trade reconciliation program with Canada (net exports component), \$343,000 for a quarterly survey of State and local government expenditures and nontax revenues (State and local government purchases component), and \$145,000 to speed up the delivery of retail and wholesale trade data (change in non-farm business inventories component).

Cost data on the recommendations which have not been implemented by the Bureau were available for over half of the recommendations. Bureau officials were able to provide us with cost estimates on 24 of the recommendations totaling almost \$9 million. However, these cost estimates were not all at current dollars, and some were made in earlier years and have not been updated.

Bureau of Economic Analysis

BEA has not implemented 12 of its 14 recommendations for a variety of reasons. BEA found no need to implement five of the recommendations, alternatives were proposed for two, data collection difficulties accounted for two, and a lack of funds was cited for three recommendations. One of the recommendations, which was not implemented due to lack of funding, affects net exports. It pertained to conducting a survey on private international transactions for miscellaneous services of U. S. businesses. According to a BEA official, the agency supports the recommendation but has never requested the \$250,000 to perform the survey. Another recommendation pertaining to improving BEA's plant and equipment survey has failed to receive funding in the past. A request for \$604,000 was rejected by OMB in fiscal year 1982, but BEA has included it in the budget request for 1983.

BEA is planning to implement the remaining two recommendations in the near future. They concern (1) analyzing revisions in the detailed GNP components in successive annual revisions and (2) assessing the reliability of detailed annual figures for publication including an indication of recent errors in estimation. According to a BEA official, BEA is planning to do an extensive revisions analysis in 1982 for both the quarterly and annual estimates. Lack of funding will delay the project because

staff will have to work part-time on this project. These improvements will be worked on at those times which are not consumed with developing the GNP estimates.

Cost information was provided to us by a BEA official on the five recommendations for which BEA either lacked funding or is planning to implement. Three of the recommendations would cost about \$1.2 million to implement while the two recommendations to be implemented in the near future would be made with minimal additional cost using existing resources. For the remaining nine recommendations, cost data were not available because BEA had no plans to implement them.

Statistical Reporting Service

The chances that the Department of Agriculture's Statistical Reporting Service will implement its remaining 12 recommendations are small, except for one. Department officials cited either data collection problems or no independent need for the recommended improvements for 11 of the recommendations. Department officials said they were planning to implement one of the recommendations by speeding up the annual economic survey of agriculture for its use in the first July revision. Implementation of this recommendation would satisfy an existing 1956 agreement between OMB and the Departments of Agriculture and Commerce that a single set of estimates be published on farm income estimates. The agreement called for the Department of Agriculture to provide the farm income estimates to BEA in time for the first July revision of GNP.

Cost information on the Department's unimplemented recommendations is sketchy. Department officials could provide us with estimates on only four of the recommended improvements that totaled about \$10 million annually.

Bureau of Labor Statistics

The Bureau of Labor Statistics cited no independent need and/or lack of funding as reasons for not implementing its seven recommendations. The agency is not pursuing the implementation of these recommendations. For example, one recommendation called for speeding up the collection of fourth quarter wage data from the unemployment insurance system. Agency officials cited some improvement in collecting the data from the State Employment Security Agencies, its partners in the Federal/State cooperative program. However, recent funding cuts to the Department of Labor's Employment and Training Administration which funds the State agencies to collect this data will adversely affect the State agencies' reporting time. Cost data on the recommendations were not available.

Internal Revenue Service

The principal reason for the Internal Revenue Service not implementing three of the recommendations is funding. One additional recommendation would require a change in tax reporting for corporations, and the Service had no plans to change the form to implement the recommendation. In 1978 the Director of the Internal Revenue Service's Statistics Division stated that in light of the division's budget situation, the Service's needs must be met first with existing funds and they could not justify the advisory committee's recommendations at that time. He also stated that the impetus for making use of Internal Revenue Service data to improve GNP must come from outside the agency and that it must also include a provision for adequate funding.

Currently, according to Service officials, the inability to obtain increased funding, decreased staff, and increased workload within the Statistics Division have placed their basic statistical program in jeopardy and only those programs which will benefit the Treasury Department will be funded. Funds for other enhancements must come from outside the agency.

Cost data on the recommendations were available, although not current. For the most part, cost estimates were based on 1977 dollars. For the four recommendations not implemented, the total cost estimate ranged from about \$1 million to \$1.4 million, annually.

Other Federal agencies

The remaining 23 recommendations which have not been implemented are spread over 15 Federal agencies. The majority of these agencies cited lack of funding and the fact that information requested was not needed by the agencies for their missions as the main reasons for not implementing the recommendations. Other reasons included respondent burden, lack of feasibility, and prohibition by confidentiality restrictions. An example of a recommendation for which concerns existed over both funding and no independent need was the Department of Defense providing quarterly data on defense purchases from foreign suppliers divided between goods and services used abroad. The data would be used in estimating net exports. According to a Defense official, the information requested is for BEA's needs only. It would also, according to the Defense official, be very costly to implement, although he could not provide us with the cost.

One recommendation could not be implemented because of a confidentiality restriction. A Department of the Treasury recommendation to use the Census Bureau's industrial directory (the standard statistical establishment list) to update the coverage of nonbank firms for use in estimating net exports will not be

implemented because the use of the directory by agencies other than the Census Bureau is prohibited by law because of confidentiality restrictions. In a prior GAO report 1/ we have supported efforts by the Department of Commerce to introduce legislation to lift the confidentiality restrictions for statistical purposes.

Three of the recommendations have been classified as not implemented because, although some actions have been taken, their objectives have not yet been accomplished. The three recommendations which addressed corporate profits and net interest components were identical and directed at three agencies. The Federal Reserve Board, the Federal Deposit Insurance Corporation, and the Department of the Treasury's Comptroller of the Currency were to modify their design of the new subannual survey of income of commercial banks to obtain (1) quarterly tabulations of net income 65 to 70 days after the reference quarter, and if possible, on a preliminary basis 40 days after the quarter, and (2) net income figures for the domestic entities of the companies, as distinct from their foreign affiliates. The agencies, through the Federal Reserve Board, are providing BEA with tabulations as called for in the recommendation, 40 days, 65 days, and 70 days after the reference quarter. Several steps have also been taken to provide a better basis for differentiating between domestic and foreign offices.

Although the Federal Reserve Board is providing data called for in the recommendation, BEA is not using the data. According to BEA the data needs to be further analyzed to determine if it can be useful in making the quarterly GNP estimates. The quarterly domestic bank income is inconsistent for the year's four quarters and movements are too volatile from quarter-to-quarter, which BEA believes is noncharacteristic of this type of income. The Board's and BEA's efforts to resolve the problem associated with BEA's use of the data have not been successful. Both agencies, however, are continuing efforts to resolve the matter. The Board believes it has complied with the recommendation. We classified the recommendation as not implemented since its objective has not been met and the agencies have yet to determine if the quality of the data can or needs to be improved to make it useful for the GNP estimates.

Cost data on those recommendations which have not been implemented were not available. Officials at many of the agencies did tell us the recommendations would be very expensive to implement but have not estimated the cost because they were not pursuing implementation. For others the cost was not easily identified.

1/"After Six Years, Legal Obstacles Continue To Restrict Government Use Of The Standard Statistical Establishment List" (GGD-79-17, May 25, 1979).

EFFECTIVE OVERSIGHT OF THE IMPLEMENTATION
OF THE ADVISORY COMMITTEE'S RECOMMENDATIONS
IS NEEDED

With the concern of economic policymakers over sizable revisions to GNP in the early 1970s, OMB's Statistical Policy Division--the predecessor to the Office of Federal Statistical Policy and Standards and the Office of Information and Regulatory Affairs--was authorized to develop a coordinated statistical budget to improve the GNP estimates' data base. The Advisory Committee on GNP Data Improvement was established in 1973 to assist the Statistical Policy Division in this undertaking by providing a study of what was needed to improve the statistical foundation of the GNP over a 5-year period. A 6-year period was finally decided on to avoid excessive workload problems for individual agencies.

The recommendations were made in an atmosphere of an "ideal situation," according to a former advisory committee staff member. The advisory committee recommended all improvements it thought were needed to improve GNP. Judgment was used in ranking the recommendations by year for the 6-year period. The general concept of the ranking gave the recommendations in earlier years a higher priority than the ones in later years. Cost was not considered in the ranking because it was either not available or very uncertain.

The Office of Federal Statistical Policy and Standards was responsible for overseeing the implementation of the advisory committee's recommendations that were made to 24 Federal agencies. The Office attempted to coordinate the implementation of the recommendations and identify those recommendations which should be given high priority. Its efforts were directed mainly at (1) contacting the Federal agencies to whom the recommendations were directed to ascertain their implementation plans, (2) utilizing the interagency Subcommittee on Economic Statistics which consisted of the primary Federal users and producers of economic data to evaluate and where appropriate support the recommendations included in the agencies' budget proposals to OMB, and (3) contacting Federal and private users in 1980 in an effort to prioritize the recommendations that were still not implemented. However, no quantitative analysis was performed to demonstrate the need for the recommendations. Users were asked to rank each recommendation according to its importance.

The advisory committee's recommendations have received very little attention since the August 1981 transfer of the statistical functions back to OMB's Office of Information and Regulatory Affairs. Realizing the slow progress in implementing the recommendations, the Office of Information and Regulatory Affairs recognized during our evaluation the need for prioritizing the recommendations which had not been implemented. With the added

responsibilities and reduced staff since the transfer from the Office of Federal Statistical Policy and Standards, its position was that it would only be able to focus on high-priority recommendations requiring Government-wide coordination. However, the Office of Information and Regulatory Affairs has not identified those high-priority areas. A subsequent reorganization within the Office in May 1982 has further reduced the staff and consolidated the statistical policy function with regulatory analysis.

The Federal agencies to whom the recommendations were directed have the primary responsibility for implementation. They have relied on the advisory committee's report to justify funding for the improvements recommended. BEA has worked with individual agencies to get improvements made. Its efforts have resulted in some improvements, either recommended by the advisory committee or itself.

The Office of Information and Regulatory Affairs and its predecessor have provided limited assistance to the agencies in justifying the recommendations made by the advisory committee. The Office of Federal Statistical Policy and Standards did provide the Census Bureau with a list of the six highest priority recommendations which it thought should be included in the Bureau's multiyear plan for current programs. As with the advisory committee's ranking, the list of the six high-priority recommendations was judgmental, based on the views of Federal and private users, as noted earlier as well as the Office of Federal Statistical Policy and Standards own assessment of need. No further effort has been made beyond the advisory committee's report to demonstrate the need for the recommendations.

During our evaluation, the Office of Information and Regulatory Affairs recognized that it could not oversee and coordinate the advisory committee's recommendations that had still not been implemented without the assistance of BEA. The Office suggested to BEA that it update the status of the recommendations, identify those that could be handled by BEA, and identify those for which it would need the Office's assistance. For those that would require the Office's assistance, the preliminary work and an indication of their priority would have to be performed by BEA. BEA's response to the suggestion was that the possibility of its involvement in coordinating the advisory committee's recommendations would be considered after the planned or proposed reductions to the GNP's data base have been finalized.

THE EROSION OF GNP'S DATA BASE IS CAUSING ADDITIONAL CONCERNS

Although BEA regards many of the advisory committee's recommendations as needed to improve the reliability of the GNP estimates, BEA assigns a higher priority to maintaining its present data base. The reductions in federally imposed paperwork burden,

efforts to reduce the growth of Federal spending, and the deregulation of private industry might affect GNP's reliability in the near future. Concern is growing among congressional and Federal officials that those changes might occur without adequate coordination and analysis of how they will affect the GNP and other Federal statistics.

BEA collects relatively little data but prepares GNP using numerous data collected by others. The data underlying the GNP estimates are gathered and compiled by many Federal agencies, including the Census Bureau, the Bureau of Labor Statistics, the Internal Revenue Service, and the Department of Agriculture, and a number of private sources. While much of this data is general purpose, much of it is also collected primarily for carrying out the source agencies' own programs. BEA's reliance on data which are collected for purposes other than GNP makes preparing GNP relatively inexpensive but leaves GNP's data base subject to program changes and budget reductions at the source agencies.

The combination of budget cuts, especially for fiscal years 1982 and 1983; the reduction in paperwork burden mandated by the Paperwork Reduction Act of 1980 (P.L. 96-511); and the deregulation of certain segments of private industry such as air transportation have caused concerns of data erosion in GNP estimates. The following eliminations and reductions might influence the quality of future GNP estimates:

--The Census Bureau has made reductions to its economic censuses and current programs in fiscal year 1982 which affect GNP. The 1982 commodity transportation survey, which BEA would use for its input-output table and GNP benchmark estimates, is being deferred to a later year. Coverage of hospitals, private schools, universities, political organizations, and labor unions which would be used in preparing benchmark estimates for the personal consumption expenditures for services component is eliminated from the 1982 census of service industries. The monthly survey of selected service industry receipts used to prepare the quarterly services in GNP was changed to an annual survey. That change will further reduce the amount of information the quarterly estimates are based on. The sample size of the monthly wholesale trade survey is reduced, resulting in decreased reliability of data used in preparing the change in nonfarm business inventories component. The monthly survey of residential alterations and repairs had a 25 percent sample size reduction which will reduce the reliability of data used for the GNP residential construction estimates.

- The Internal Revenue Service has made several changes to its statistics of income program which affect the quality of data used in preparing annual and benchmark estimates of proprietors' income, corporate profits, rental income, net interest, and other income side components of GNP. Smaller samples are being used to obtain data from individual and partnership tax returns. Preliminary tabulations from corporate tax returns have been terminated. Industry data on farming will be tabulated every 5 years instead of annually.
- The Securities and Exchange Commission will in 1983 terminate data it provides on corporate securities markets which are used in preparing quarterly estimates of earnings of pension funds and brokers for the GNP.
- The Bureau of Labor Statistics eliminated in 1982 construction labor and materials requirements which were used in compiling the benchmark estimates of residential and non-residential construction in GNP. Also, some of the data that would be used in preparing constant dollar GNP will be foregone. This includes revision and developmental work in the producer price index program and expansion of international price measures.
- The Federal Trade Commission has reduced the sample size and the data items collected on the quarterly financial report. ^{1/} This reduction decreases the reliability of data used to prepare quarterly corporate profits.
- The Department of Agriculture has eliminated or reduced some of its programs to reduce respondent burden. Two of the programs reduced are used in compiling GNP. The quarterly farm labor survey was reduced to an annual survey which decreases the amount of information on quarterly income of farm wage earners. Its planting intention report has been reduced from a biannual to an annual survey which will reduce the amount of data used in projections of farm output and proprietors' income.
- The Interstate Commerce Commission, to reduce paperwork burden on carriers, has eliminated data used in compiling the input-output tables used to prepare benchmark estimates for the personal consumption expenditures and producers' durable equipment components in GNP. In 1981 the Commission eliminated reporting of all class III (less than \$1

^{1/}The Census Bureau is scheduled to assume responsibility for the quarterly financial report program in fiscal year 1983.

million of revenues) motor carriers and reduced reporting of class II (\$1-5 million of revenues) motor carriers of passengers. The Commission also stopped collecting quarterly freight and passenger statistics from water carriers and has proposed reducing the amount of information collected annually from class I (over \$5 million of revenues) and further reducing that obtained from class II motor carriers.

For most of those programs where reductions have occurred, the advisory committee recommended improvements. Additionally, those programs provide data to four of the components we have identified as most troublesome--personal consumption expenditures for services, change in nonfarm business inventories, farm proprietors' income, and corporate profits.

CONCLUSIONS

The advisory committee's 6-year plan for implementing 155 recommendations to the GNP data base has not been accomplished. About one-third of the recommendations have been either fully or partially implemented by the 24 Federal agencies to improve the data for GNP. The agencies generally implemented those recommendations which benefited their programs, involved minimal cost, and/or were easily implemented. Only about half of the recommendations implemented addressed the most troublesome GNP components as now identified by GAO. Many of the seemingly most important recommendations have not been implemented and in all likelihood will not be made in this tight budget environment unless management improvements are made to oversee the advisory committee's recommendations and other improvements to GNP.

The advisory committee recommended many improvements to the GNP. It did not single out those improvements most needed in an environment of limited resources. The oversight role of OMB's Office of Information and Regulatory Affairs and its predecessor--the Office of Federal Statistical Policy and Standards--has not been an effective arrangement to providing the type of guidance needed to insure that the most important recommendations are implemented. They have made limited attempts, although unsuccessful, to prioritize the recommendations which have not been implemented. Added responsibilities and reduced staff within the Office of Information and Regulatory Affairs suggest progress will not improve. The involvement of BEA, the producer of the GNP estimates, is necessary to fulfill this task. BEA has the necessary knowledge and tools at hand to assist the Office of Information and Regulatory Affairs in carrying out its responsibilities of overseeing and coordinating the efforts of the numerous Federal agencies which provide the data used in estimating GNP. BEA has worked with the agencies and their efforts have resulted in some improvements, either recommended by the advisory committee or itself, but a coordinated effort with the

Office of Information and Regulatory Affairs will be needed for improvements that BEA deems important which have not been made.

Adequate efforts have not been made to identify the most needed improvements to GNP as recommended by the advisory committee. Past efforts have relied almost entirely on the opinion of the data collecting agencies' officials and GNP users with minimal attention devoted to demonstrating the need for the improvements. Our analysis of the revisions shows the four components with the largest impact on revisions. On that basis, improvements in these areas could have the highest yield in reducing revisions. Estimates for GNP components prepared largely by trending, such as personal consumption expenditures for services and State and local government purchases, are also important areas for improvement. The effect of not having quarterly data to consider in estimating and revising quarterly GNP is unknown.

The practicality of the improvements should be considered in any prioritization of improvements to GNP. Judging practicality should include weighing the anticipated cost against the prospects for success to determine if the improvement's potential impact is worth the cost standing on its own or relative to other improvements. Marginal improvements with a large price tag might thus not be considered practical. Reliable cost information is currently not available for the majority of the recommendations and is needed for responsible decisionmaking. The Office of Information and Regulatory Affairs might have to assist BEA in obtaining the needed cost information and would have to assess GNP needs against the source data agencies' other data needs. Some of the recommendations may be too costly to implement when linked with the results they are expected to yield or compared to other data needs.

The reductions currently being made to some of the various statistical series which provide data used by BEA in estimating GNP might affect the reliability of the estimates. The reductions' impact and the potential for restoring those data should also be considered in any ranking of GNP data needs.

The steps outlined above are needed to produce information so that informed judgments can be made about additional resources, if any, that should be provided for affecting long-term improvements to GNP estimates.

Although better information is needed for deciding on GNP data improvements, obtaining funding for GNP data improvements has been a major obstacle to their implementation, especially since the budget requests are made by the agencies collecting the data, and the data or an improvement to it might not be needed for the agencies' own programs. As a last resort, having BEA

budget for data improvements primarily for the purpose of benefiting GNP and reimburse the agencies might be a more effective arrangement to obtain funding, since BEA has the expertise and incentive to justify GNP data needs. Under such a reimbursable program OMB's Office of Information and Regulatory Affairs, in fulfilling its statistical program coordination responsibilities, should assist BEA and the agencies in developing agreements for reimbursements. The Office should also assure that data collection agencies do not inappropriately transfer funding responsibility for programs benefiting their needs and seek BEA reimbursement.

RECOMMENDATIONS TO THE DEPARTMENT
OF COMMERCE AND THE OFFICE OF
MANAGEMENT AND BUDGET

We recommend that the Secretary of Commerce, in cooperation with the Director, OMB, direct BEA to take the lead in the prioritization and justification of any requests for funds to implement the recommendations of the Advisory Committee on GNP Data Improvement or other needed improvements.

The Secretary of Commerce should then direct BEA in determining the need for data improvements to GNP to:

- Give priority attention to determining the practicality of implementing the advisory committee's recommendations directed at those GNP components identified by GAO as having relatively large revisions or insufficient data to consider in preparing quarterly GNP estimates.
- Weigh the relative importance of those improvements to the GNP data base against the need to restore reductions in source data that might affect the reliability of GNP estimates.
- Consider the practicality along with the results of future analyses of the GNP account, as recommended by GAO in chapter 2, to determine the need for other improvements.

Further, we recommend the Director, OMB, use BEA's prioritization and justification of GNP improvements in reviewing agencies' budget submissions which provide the data used in estimating GNP.

If necessary, the Secretary of Commerce and the Director, OMB, should have BEA budget for GNP improvements needed on a reimbursable basis that would primarily benefit GNP.

AGENCY COMMENTS AND OUR
EVALUATION

OMB and Commerce do not agree what their roles should be in determining improvements needed for the GNP estimates. OMB is in agreement with GAO that Commerce should take the lead in managing GNP data improvement issues and that BEA is properly designated for identifying and justifying data improvements. OMB takes this position because of Commerce's dual role as data compiler for the GNP estimates and data producer for many of the GNP components. OMB stated that its Office of Information and Regulatory Affairs can then evaluate the proposed improvements along with other statistical budget priorities. OMB also believes that the lead role for Commerce would strengthen BEA's contacts with the producers of data for the GNP account. In contrast, Commerce stated that OMB should lead because it has the authority to coordinate statistical policy across agencies and it has less perceived bias.

GAO believes that BEA is in the best position to determine the data needs of the GNP estimates because of its expertise and knowledge as preparer of the estimates. BEA officials with day-to-day responsibility for the GNP estimates should be in a better position to determine and gather the needed information to justify and prioritize the GNP improvement needs. OMB may disagree and subsequently change such priorities in light of other statistical needs, but the initial priorities for the program are seemingly best determined by the producer agency. Experience has shown, regardless of today's budgetary realities, that OMB's Office of Information and Regulatory Affairs and its predecessor were not surfacing and prioritizing the most needed improvements to the GNP account. GAO is not advocating that BEA take total responsibility for the GNP improvement needs, but rather that BEA work in a partnership arrangement with OMB to obtain the information necessary for deciding on GNP improvements. OMB can then weigh the need for improvements to the GNP estimates against the needs of other statistical agencies' budget priorities. OMB's role in this effort should not be a passive one to wait until the statistical budgets are submitted by the agencies. It should actively participate in assisting BEA to obtain the needed information, such as cost of data improvements, from the agencies that produce the data to justify and prioritize the data needs. OMB's assistance will be needed because of the 20 Federal agencies outside of Commerce which provide the data used in estimating GNP.

Commerce disagrees with us that if the need arises, BEA should fund data improvements in other Federal agencies' statistical programs that primarily benefit GNP estimates. OMB agrees that such a funding arrangement should be considered, if necessary, provided it is subject to OMB approval in the annual review of agency budgets. Commerce is concerned

that this type of arrangement might encourage agencies to seek reimbursement from BEA to continue their existing programs which supply the GNP source data. The information gathered during our study indicates that funding has been a major obstacle to GNP data improvement where the data or improvement to it is not needed for the data collection agencies' programs. Reimbursement by BEA in these circumstances would provide an incentive to other agencies to make GNP data improvements which BEA believes are justified and deserve priority attention. To avoid unwarranted attempts by the collection agencies to shift the cost of data collection to BEA's budget, OMB should assist BEA and the agencies in developing any agreements for reimbursement.

Although BEA does not currently use the reimbursement approach for the collection of GNP data, reimbursable work among the Federal statistical agencies is not uncommon. For example, within Commerce, the Census Bureau expends a substantial portion of its efforts on reimbursable work for other agencies, such as the Departments of Labor, Justice, and Housing and Urban Development. Such reimbursement efforts are reviewed by OMB and the Congress in the budget process.

Before adopting a reimbursable approach for funding GNP data improvements, however, we believe a better effort should be made to make a success of the present process in which agencies budget for GNP data improvements. For the current approach to succeed, OMB would have to ensure during the budget review process that agencies are giving proper attention to priority needs for improving GNP estimates.

OMB commented that our report leaves the impression that the advisory committee and Commerce's former Office of Federal Statistical Policy and Standards did not develop priorities regarding the committee's recommendations. We recognized the efforts of the committee and the Office in this chapter. The general concept of the committee's ranking gave the recommendations to be implemented in the earlier years a higher priority than those in the later years. However, some recommendations of lesser importance were included in the earlier part of the period because they were expected to be easily implemented or involved minimal or no increases to budget costs. Judgment was used in the ranking and cost was not available and thus not considered. The 6-year period was selected to avoid excessive workload problems for the agencies. The committee's priority ranking was in essence a breakdown of the recommendations over a 6-year period. A recognized limitation to the committee's ranking was that it did not prioritize the recommendations that were of greatest need if funds were not available to implement all of the recommendations.

The efforts of the Office of Federal Statistical Policy and Standards in prioritizing the recommendations are also discussed in this chapter. The Office's main efforts in developing the agencies' priorities were to utilize the Subcommittee on Economic Statistics, which included the primary Federal users and producers of economic data, to evaluate and where appropriate support the recommendations included in the agencies' budget proposals. The Office did not identify the recommendations that needed priority attention. Their course of action was to let the individual agencies' submit their budget proposals, including those improvements the agencies felt were needed. Through the subcommittee, the Office would then prioritize the improvements which were included in the agencies' proposals, including those for improvements for programs other than the GNP estimates. GAO found that the agencies were reluctant to make or include GNP improvements in their budgets because they were not needed for their own purposes or would require additional funding.

Commerce stated that our report implies that improved GNP source data will lead to improved GNP estimates and notes that the connection between the two is by no means obvious. Improved GNP source data for components with relatively large revisions or those lacking data to prepare earlier estimates should lead to improved GNP estimates. For those components lacking data, improved estimates may lead to greater revisions than the components are now experiencing. However, the more immediate issues are whether the data improvement is feasible, is likely to significantly improve the estimates, and is affordable. Our report identifies targets of opportunity for Commerce to consider in improving the GNP estimates. Our recommendations on page 63 provide for answering the practical questions stated above in deciding whether a data improvement should be attempted. OMB recognizes, as we point out, that today's budgetary realities necessitate taking a harder look at the merits of making changes which 5 years ago may have appeared useful.

Commerce commented that many of the advisory committee's recommendations relate to improvement of annual historical data, and that there is little connection between improving annual historical data and improving recent quarterly estimates, which our report quite appropriately focused on. We agree that improving the data used for the quarterly estimates would be more beneficial since these are more critical for economic policymaking. As of February 1982, 118 advisory committee recommendations were either partially or not implemented, including 56 affecting the quarterly source data. Of the 56 recommendations, 14 are directed at the 6 components our report identified as a high priority to consider improvements for the source data.

GNP COMPONENT DEFINITIONS

Business transfer payments	Payments to persons from business for which no goods or services are received in return. Such items include consumer bad debts, corporate gifts to nonprofit institutions, and personal injury payments to persons.
Capital consumption adjustment	Difference between depreciation reported at historical cost for tax purposes and depreciation at replacement cost based on the estimated service life of the asset.
Capital consumption allowances	Depreciation charges and accidental damage to fixed business capital.
Charges against gross national product	Cost incurred and profits earned in the production of gross national product.
Compensation of employees	Income accruing to employees as remuneration for work. It is the sum of wages and salaries and supplements to wages and salaries, such as employer contributions for social insurance, private pension, health, and welfare funds, and injury compensation.
Corporate profits	Earnings of corporations organized for profit. Profits are reported without deduction for depletion and exclude capital gains and losses. Earnings are adjusted for inventory valuation and capital consumption.

Government purchases	Goods and services purchased by the three levels of government--Federal, State, and local--and gross investments by government enterprises. Purchases include compensation of government employees, net purchases of used goods and purchases from business and from abroad.
Gross national product	Expresses in dollars the market value of goods and services produced by the Nation's economy within a specific period of time, usually for a calendar year or a quarter of a year at an annual rate.
Gross private domestic investment	Fixed capital goods purchased by private business and non-profit institutions and the value of the change in the physical volume of inventories held by private business. Purchases of new residential structures are included as fixed capital.
Indirect business taxes and nontax liability	Tax liabilities paid by business, other than employer contributions for social insurance and corporate income taxes. Sales taxes, excise taxes, and property taxes paid by business are the principal types of indirect taxes. Nontax liability includes business payments for fines, rents, royalty payments, penalties, and donations.
Inventory valuation adjustment	Gains or losses included in book profits due to differences between replacement and original cost of goods measured by the change of inventory.

National income

Total earnings of labor and property from the production of goods and services.

Net exports

Exports less imports of goods and services. Exports are part of national production and imports are not, but imports are included in the components and are therefore deducted.

Net interest

Excess of interest payments made by the domestic business sector over its interest receipts plus net interest received from abroad.

Net national product

Gross national product less capital consumption allowances with capital consumption adjustment, which are deducted from gross private domestic fixed investment to express it on a net basis.

Personal consumption expenditures

Goods and services purchased by individuals and nonprofit institutions which render services principally to individuals. The value of food, fuel, clothing, rent of dwelling, and financial services received in kind by individuals is also included. The rental value of owner-occupied residential structures is included, but purchases of residential structures are classified as gross private domestic investment.

Proprietors' income	Earnings of unincorporated business--proprietorships, partnerships, and producers' cooperatives--from their operations. Interest and dividend income are excluded. Supplementary income from rental property to individuals is included in the rental income component.
Rental income of persons	Earnings of individuals from renting real property, such as a house, store, or farm. Also included are the imputed net rental value of owner-occupied residential structures and royalties from patents, copyrights, and rights to natural resources.
Statistical discrepancy	Amount by which gross national product differs from charges against gross national product. It arises because both estimates are made independently by a methodology subject to error.
Subsidies less current surplus of government enterprises	Subsidies are monetary grants provided by Government to business. Current surplus of Government enterprises is the excess of sales receipts over operating costs. Such enterprises include the U.S. Postal Service, the Commodity Credit Corporation, and the Tennessee Valley Authority. These are distinguished from other Government activities by the fact that they are financed by the sale of a product or service rather than through general taxes.

ADVISORY COMMITTEE ON GNP DATA IMPROVEMENT'S
RECOMMENDATIONS BY FEDERAL AGENCY, ESTIMATES AFFECTED,
AND STATUS AS OF FEBRUARY 1982

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Department of Commerce			
Bureau of the Census	Exclude sales and amusement taxes in monthly selected services receipts survey.	Quarterly consumption expenditures	Implemented
	Study feasibility and impact of collecting revised data for preceding month in monthly retail trade survey.	Quarterly personal consumption expenditures	Not implemented
	Study feasibility and impact of collecting revised data for preceding month in monthly selected services receipts survey.	Quarterly personal consumption expenditures	Not implemented
	Expand monthly selected services receipts survey to include private for-profit commercial and vocational schools.	Quarterly personal consumption expenditures	Not implemented
	Tabulate industry-product shipments in annual survey of manufactures as is done in census of manufactures.	Annual personal consumption expenditures and producers' durable equipment	Not implemented
	Collect and tabulate broad product detail on sales of new car dealers and department stores in annual retail trade survey in time for second July revision.	Annual personal consumption expenditures	Not implemented
	Tabulate existing industry sales data from industrial directory programs and collect through annual survey program of all nonagriculture industries aggregate costs of goods and services purchased from others.	Annual personal consumption expenditures and producers' durable equipment	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of the Census (cont.)	Speed up tabulations of annual retail trade survey by mid-May following the reference period.	Annual personal consumption expenditures and change in nonfarm business inventories	Not implemented
	Conduct annual surveys of not-for-profit organizations.	Annual personal consumption expenditures and personal income	Not implemented
	If recommended expansion of commodity transportation survey is successful, provide these expanded data annually.	Annual personal consumption expenditures and producers' durable equipment	Not implemented
	Speed up revised price index of single family homes to be available 65-70 days after the reference quarter.	Quarterly and annual constant dollar residential structures	Implemented
	Update study of coverage of F.W. Dodge reports.	Quarterly non-residential structures	Implemented
	Update every 5 years progress patterns and adjustment factors for single family value of construction put in place.	Quarterly residential structures	Not implemented
	Develop quarterly construction output price indexes excluding land costs for nonresidential buildings.	Quarterly non-residential structures	Not implemented
	Expand survey of residential alterations and repairs sample size and restore quarterly tabulations of data on a more timely basis.	Quarterly residential structures	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of the Census (cont.)	Explore feasibility of constructing price index for residential additions and alterations.	Quarterly constant dollar residential structures	Not implemented
	Explore feasibility of developing output price indexes for electric power, sewer, water supply, and railroad construction.	Quarterly constant dollar non-residential structures	Not implemented
	Collect annual data on oil and gas drilling and exploration classified by footage drilled and depth of wells (with Energy Information Administration).	Annual constant dollar non-residential construction	Implemented
	Conduct annual survey of real estate industries.	Annual residential and non-residential structures	Not implemented
	Study feasibility of collecting revised data on shipments and inventories in the monthly survey of manufacturers' shipments, inventories, and orders.	Quarterly producers' durable equipment and change in nonfarm business inventories	Implemented
	Introduce full probability sample for monthly survey of manufacturers' shipments, inventories, and orders.	Quarterly producers' durable equipment and change in nonfarm business inventories	Not implemented
	Refine reporting shipments by defense-oriented industries to insure uniform timing in monthly survey of manufacturers' shipments, inventories, and orders.	Quarterly producers' durable equipment and change in nonfarm business inventories	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of the Census (cont.)	Collect separate data on capital shipments to governments in monthly survey of manufacturers' shipments, inventories, and orders.	Quarterly producers' durable equipment	Not implemented
	Collect through annual survey program of all nonagricultural industries capital expenditures separately for plant and equipment depreciated or amortized.	Annual producers' durable equipment	Not implemented
	Collect monthly data on the value of structures and large equipment under construction/production and the amount that has been completed.	Quarterly change in nonfarm business inventories	Not implemented
	Explore feasibility of using screened sample of firms with actual retail inventory records in monthly retail trade survey.	Quarterly change in nonfarm business inventories	Not implemented
	Include inventories of sales branches and auxiliary establishments in the monthly survey of manufacturers' shipments, inventories, and orders.	Quarterly change in nonfarm business inventories	Not implemented
	Study feasibility of collecting revised data on inventories for previous month in monthly wholesale trade survey.	Quarterly change in nonfarm business inventories	Not implemented
	Explore collection of inventory data by stage of fabrication for military hardware in monthly survey of manufacturers' shipments, inventories, and orders.	Quarterly change in nonfarm business inventories	Not implemented
	Tabulate data on wholesalers' inventories in annual wholesale trade survey by mid-May following the reference period.	Annual change in nonfarm business inventories	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of the Census (cont.)	Study quality of reporting on shippers' export declarations for merchandise exports.	Quarterly net exports	Not implemented
	Refine instructions to shippers' export declarations relating to foreign military sales (with Industry and Trade Administration).	Quarterly net exports	Not implemented
	Tabulate value of transportation freight charges separately from insurance and other handling charges for merchandise imports by country.	Quarterly net exports	Not implemented
	Restore bilateral merchandise trade reconciliation program with Canada.	Annual net exports	Not implemented
	Expand bilateral merchandise trade reconciliation program to other countries.	Annual net exports	Not implemented
	Institute quarterly survey of expenditures and non-tax revenue of State and local governments.	Quarterly State and local government purchases	Not implemented
	Speed up tabulations of governmental finances to be available by mid-May following the reference period.	Annual State and local government purchases	Not implemented
	Collect supplements to wages and salaries through annual survey program of all non-agricultural industries.	Annual supplements to wages and salaries	Not implemented
	Provide preliminary tabulations of local government tax revenues from quarterly summary of State and local tax revenue by 60 days after reference quarter.	Quarterly indirect business taxes	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of the Census (cont.)	Collect through annual survey program of all non-agricultural industries: --Depreciation allowances and accidental damage to fixed capital. --Yearend value of inventories by method of valuation.	Annual capital consumption allowances and change in nonfarm business inventories	Partially implemented
	Collect in economic censuses data on communications, repairs, rentals, energy and advertising services purchased by establishments.	Benchmark	Implemented
	Expand census of selected services to all services for-profit.	Benchmark	Implemented
	Conduct census of not-for-profit organizations excluding religious organizations.	Benchmark	Implemented
	In census of construction, collect new and maintenance and repair receipts by type of construction.	Benchmark	Implemented
	Collect data on force account construction and transportation payrolls in economic censuses.	Benchmark	Implemented
	Tabulate sales by class of customer in census of retail trade.	Benchmark	Implemented
	Collect in all economic censuses book value beginning and end-of-year inventories by method of valuation.	Benchmark	Implemented
	Collect in all economic censuses mandatory separate from voluntary wage supplements.	Benchmark	Implemented
	Collect in economic censuses (except governments) depreciation charges on establishment basis from firms of all sizes.	Benchmark	Implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of the Census (cont.)	Collect in all economic censuses detail on type of program for mandatory and voluntary wage supplements.	Benchmark	Implemented
	Collect total purchased services in economic censuses.	Benchmark	Partially implemented
	Expand census of retail trade to collect data on gross margins and operating expenses by kind of business.	Benchmark	Partially implemented
	Collect and tabulate dollar value of shipments by 4-digit standard industrial classification shipping and receiving industries from commodity transportation survey.	Benchmark	Not implemented
	Expand census of selected services to include purchases of commodities for resale.	Benchmark	Not implemented
	Extend census of not-for-profits to religious organizations.	Benchmark	Not implemented
	Expand census of construction industries to collect intermediate purchases separately for materials and services.	Benchmark	Not implemented
	Conduct census of transportation industries.	Benchmark	Not implemented
	Review merchandise and commodity lines in censuses of retail and wholesale trade to conform more closely with the standard industrial classification codes.	Benchmark	Not implemented
	If recommended commodity transportation survey tabulation of shipments not feasible, collect sales by class of customer in every quinquennial census of manufactures.	Benchmark	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of the Census (cont.)	Study feasibility of collecting itemized data on purchased goods and services of State and local governments.	Benchmark	Not implemented
	Conduct census of real estate industry.	Benchmark	Not implemented
	Collect in manufacturing and trade censuses the commodity composition of inventories by turnover period.	Benchmark	Not implemented
	Improve reporting of wages and salaries in economic censuses.	Benchmark	Not implemented
	Distinguish receipts from primary and secondary output by class of customer in census of selected services.	Benchmark	Not implemented
Bureau of Economic Analysis	Expand monthly personal income estimates to encompass broad aggregates for the disposition of personal income.	Monthly personal income	Implemented
	Work more closely with the Bureau of Labor Statistics to increase concordance of expenditure classes in the consumer price index with personal consumption expenditures' components.	Quarterly constant dollar personal consumption expenditures	Not implemented
	Comprehensive examination of the sampling procedure and statistical methodology used in the plant and equipment survey.	Quarterly producers' durable equipment	Not implemented
	Conduct systematic analysis of the Federal Trade Commission's manufacturing inventory data.	Quarterly change in nonfarm business inventories	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of Economic Analysis (cont.)	Study feasibility of providing supplementary inventory measures of goods and structures separately for those in production from those completed but not sold.	All changes in nonfarm business inventories	Partially implemented
	Refine definitions for inventories and final output to distinguish structures and equipment under construction/production from those that have been completed.	All changes in nonfarm business inventories	Not implemented
	Conduct basic research for developing direct measures of export and import services in constant dollars (with Bureau of Labor Statistics).	Quarterly constant dollar net exports	Implemented
	Make continuing efforts to improve distribution of international travel questionnaire by Customs Bureau.	Quarterly net exports	Implemented
	Use partial Bureau of Labor Statistics export and import prices until more complete data are available.	Quarterly constant dollar net exports	Not implemented
	Conduct bilateral reconciliation program for international service and income transactions.	Annual net exports	Not implemented
	Establish developmental project on defense prices as permanent part of BEA program.	Quarterly constant dollar Federal defense purchases	Implemented
	Consider possible introduction of productivity measures for deflating Federal Government employee compensation.	Annual constant dollar government purchases	Not implemented
	Institute 75-day GNP estimate.	Quarterly GNP	Implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of Economic Analysis (cont.)	Provide more complete and timely statement on judgments used for estimating major GNP components.	Quarterly GNP	Implemented
	Conduct periodic reconciliations of GNP by industry and industrial production index (with Federal Reserve Board).	Annual constant dollar GNP by industry	Implemented
	Examine feasibility of updating quinquennial input-output coefficients to current year being estimated using the annual input-output tables.	Annual GNP by industry	Not implemented
	Prepare and publish handbook on methodology used in the national income and product accounts.	All GNP	Partially implemented
	Review present procedure of deferring use of information from special reports until benchmark estimates.	Annual GNP	Not implemented
	Review detailed annual components presently published to assess if they meet reliability standards appropriate for publication and, for the detailed components that are published, provide an indication of recent errors in estimation.	Annual GNP	Not implemented
	Expand application of the input-output table to cross-check increased number of GNP components.	Benchmark	Partially implemented
	Prepare benchmark GNP estimates within one year of completion of quinquennial input-output table.	Benchmark	Not implemented
	Analyze reasons for revisions in detailed GNP components in successive annual revisions.	Benchmark	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of Economic Analysis (cont.)	Publish analyses of revision changes with each quinquennial benchmark comparable to that in the advisory committee's study.	Benchmark	Not implemented
	Conduct benchmark survey on private international transactions for miscellaneous services of U.S. business.	Benchmark net exports	Not implemented
Industry and Trade Administration	Refine instructions to shippers' export declarations relating to foreign military sales (with Census Bureau).	Quarterly net exports	Not implemented
Department of Agriculture Statistical Reporting Service	Collect quarterly data on new farm construction.	Quarterly residential and non-residential construction	Not implemented
	Refine the existing quarterly data on farm crops owned by farmers but stored in off-farm elevators and warehouses.	Quarterly change in farm business inventories and farm proprietors' income	Implemented
	Collect quarterly data on interstate sales and purchases of feeder and stocker cattle.	Quarterly change in farm business inventories and farm proprietors' income	Not implemented
	Collect quarterly national inventory data for cattle and calves.	Quarterly change in farm business inventories and farm proprietors' income	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Statistical Reporting Service (cont.)	Speed up collection of data on the movement of crops to market for soybeans, corn, wheat, cotton, and sorghum to 60-65 days after reference quarter.	Quarterly farm proprietors' income	Implemented
	Institute a survey to collect quarterly data on farm production expenses for major cost items.	Quarterly farm proprietors' income	Not implemented
	Institute research program for measuring intrastate sales and purchases of meat animals.	Quarterly farm proprietors' income	Not implemented
	Collect annual survey data on output and marketings of greenhouse and nursery products.	Annual farm proprietors' income	Implemented
	Speed up annual economic survey of agriculture.	Annual farm proprietors' income	Not implemented
	Speed up annual reports of production, disposition, and gross income to the first quarter of the calendar year following the crop year.	Annual farm proprietors' income	Not implemented
	Collect annual data in economic survey of agriculture for cash and in-kind share rental payments divided between dwellings and land.	Annual farm proprietors' income	Not implemented
	Tabulate income and expense data in economic survey of agriculture by legal form of organization.	Annual farm proprietors' income	Not implemented
	Collect secondary type income every third year for both livestock and crop farming.	Annual farm proprietors' income	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Statistical Reporting Service (cont.)	Collect annual data in economic survey of agriculture on market value of nonresidential buildings and other depreciable improvements separately from land.	Annual farm proprietors' income	Not implemented
	Consider modifying economic survey of agriculture questions on gross sales and net income and possibly collecting gross and net income from same source.	Annual farm proprietors' income	Not implemented
Economic Research Service	Conduct more conceptual research on seasonal phenomena.	Quarterly farm proprietors' income	Implemented
	Collect annual survey data relating to rents and expenses of farm dwellings.	Annual farm proprietors' income	Implemented
	Collect every 5 years separate figures for value of residential and nonresidential buildings at replacement costs.	Benchmark farm proprietors' income	Implemented
Department of Labor			
Bureau of Labor Statistics	Request adequate funding for price index improvement program.	Quarterly constant dollar GNP	Partially implemented
	Calculate monthly indexes of tenant rentals separately for single and multifamily homes.	Quarterly constant dollar personal consumption expenditures	Not implemented
	Work more closely with BEA to increase concordance of classes in the consumer price index with personal consumption expenditures' components.	Quarterly constant dollar personal consumption expenditures	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Bureau of Labor Statistics (cont.)	Price household items of increasing importance not presently covered in consumer price index.	Quarterly constant dollar personal consumption expenditures	Not implemented
	If wholesale equipment prices at time of shipment cannot be collected, conduct periodic surveys of pricing practices in the equipment industries.	Quarterly constant dollar producers' durable equipment	Partially implemented
	Increase coverage of equipment items in the producer price index.	Quarterly constant dollar producers' durable equipment	Partially implemented
	Conduct basic research for developing direct measures of export and import services in constant dollars (with BEA).	Quarterly constant dollar net exports	Not implemented
	Prepare quarterly price indexes of Federal Government procurement consistent with the proposed Federal procurement data system classifications.	Quarterly constant dollar government purchases	Not implemented
	Conduct broad-based research program for monthly establishment survey of employment and earnings.	Quarterly wages and salaries	Partially implemented
	Speed up collection of fourth quarter wage data from the unemployment insurance system so that the data are available by mid-May following the reference period.	Annual wages and salaries	Not implemented
	Conduct labor and material requirements studies more frequently and for more construction types.	Benchmark	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Employment and Training Administration	Adhere to schedule to provide unemployment claims and payments data in time for 75-day GNP estimate.	Quarterly government purchases	Implemented
Labor-Management Services Administration	Tabulate data from new pension reporting system in national industry aggregates by mid-May following the plan year (with Internal Revenue Service).	Annual supplements to wages and salaries	Not implemented
Department of Treasury			
Internal Revenue Service	Tabulate annual income data for detailed categories of professions.	Annual personal consumption expenditures	Partially implemented
	Tabulate wage and FICA data from probability sample of employer's quarterly Federal tax returns (form 941) in time for 75-day GNP estimate.	Quarterly employee compensation	Not implemented
	Tabulate data from new pension reporting system in national industry aggregates by mid-May following the plan year (with Labor-Management Services Administration).	Annual supplements to wages and salaries	Not implemented
	Specify and tabulate business expenses associated with farm business receipts on Internal Revenue Service corporate and partnership forms.	Annual farm proprietors' income	Not implemented
	Specify and tabulate method of valuing inventories on Internal Revenue Service business tax forms.	Annual inventory valuation adjustment and change in nonfarm business inventories	Implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Internal Revenue Service (cont.)	Tabulate from corporate tax returns Schedule M which reconciles tax returns and stockholder reports.	Annual corporate profits	Not implemented
Office of Assistant Secretary (International Affairs)	Institute research program to collect direct data on "other private income" transactions from banks and nonbanks.	Quarterly net exports	Not implemented
	Use industrial directory every 3 years to update Treasury/Federal Reserve coverage of nonbank firms.	Quarterly net exports	Not implemented
Comptroller of the Currency	Modify new subannual survey of commercial banks to provide tabulations 65-70 days after reference quarter and to distinguish income from domestic and foreign entities (with Federal Reserve Board and Federal Deposit Insurance Corporation).	Quarterly corporate profits and net interest	Not implemented
Bureau of Alcohol, Tobacco, and Firearms	Adhere to schedule of providing monthly data on withdrawals from bonded warehouses in time for 75-day GNP estimate.	Quarterly indirect business taxes	Not implemented
Department of Health and Human Services			
Health Care Finance Administration	Collect quarterly data on premiums, benefits, and operating expenses from Blue Cross-Blue Shield.	Quarterly personal consumption expenditures	Implemented
	Collect quarterly data on premiums and benefits of large for-profit commercial health insurance.	Quarterly personal consumption expenditures	Implemented
	Speed up medical vendor payments data.	Quarterly government purchases	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>	
Social Security Administration	Explore collection of non-farm self-employment income data in proposed quarterly household income survey.	Quarterly nonfarm proprietors' income	Not implemented	
	Collect gross (and if possible net) rental income separately for nonfarm residential and nonresidential properties in proposed quarterly household income survey.	Quarterly rental income	Not implemented	
Federal Reserve Board	Modify new subannual survey of commercial banks to provide tabulations 65-70 days after reference quarter and to distinguish income from domestic and foreign entities (with Federal Deposit Insurance Corporation and Comptroller of the Currency).	Quarterly corporate profits and net interest	Not implemented	
	In deciding on continuation of demand deposit ownership survey, give priority to use in GNP estimates.	Annual net interest	Not implemented	
	Conduct periodic reconciliation on GNP by industry and industrial production index (with BEA).	Annual constant dollar GNP by industry	Implemented	
Department of Defense				
	Office of Assistant Secretary of Defense	Study feasibility of refining financial accounting required to identify exports under foreign military sales whose transportation was arranged by the Department of Defense.	Quarterly net exports	Implemented
		Provide to BEA quarterly data on value of defense purchases from foreign suppliers divided between goods imported into the U.S. and those goods and services used abroad.	Quarterly net exports	Not implemented
		Speed up progress payments data.	Quarterly government purchases	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Corps of Engineers	Tabulate total tonnage of domestic shipments by water carriers at 4-digit standard industrial classification level every quinquennial economic census year.	Benchmark	Not implemented
Federal Trade Commission	Review possible speedup of working capital quarterly survey.	Quarterly change in nonfarm business inventories	Not implemented
	Collect data on employer contributions to private pension, health, and welfare employee benefit plans as part of the quarterly financial report.	Quarterly supplements to wages and salaries	Not implemented
	Conduct annual survey of audited corporate profits and other selected financial items as supplement to quarterly financial report with tabulations available to BEA by mid-May following the reference year.	Annual corporate profits	Not implemented
Office of Management and Budget			
Office of Information and Regulatory Affairs	Coordinate continuing studies of seasonality by major statistical agencies.	Quarterly GNP	Implemented
	Provide budgetary reserve for carrying out essential survey on short notice.	Quarterly GNP	Not implemented
	Organize interagency task force on possible uses of census of nonprofit organizations.	Benchmark	Not implemented
Office of Federal Procurement Policy	Implement Federal data procurement system.	Benchmark	Not implemented

<u>Federal agencies</u>	<u>Recommendations</u>	<u>Estimates affected</u>	<u>Status</u>
Interstate Commerce Commission	Tabulate class II motor carrier data at same level of detail as for class I carriers every quinquennial census year.	Benchmark	Not implemented
	Assure continued tabulation of water carrier data.	Benchmark	Not implemented
Federal Home Loan Bank Board	Provide quarterly estimates of income and expenses of savings and loan associations.	Quarterly corporate profits and net interest	Implemented
Federal Deposit Insurance Corporation	Modify new subannual survey of commercial banks to provide tabulations 65-70 days after reference quarter and to distinguish income from domestic and foreign entities (with Federal Reserve Board and Comptroller of the Currency).	Quarterly corporate profits and net interest	Not implemented
Department of Energy			
Energy Information Administration	Collect annual data on oil and gas drilling and exploration classified by footage drilled and depth of wells (with Census Bureau).	Annual constant dollar non-residential construction	Implemented
	Speed up monthly data on electric and gas utilities.	Quarterly corporate profits	Partially implemented

SUMMARY MEASURES OF REVISIONS TO THE DIFFERENTLY TIMED
QUARTERLY AND ANNUAL GNP AND COMPONENT ESTIMATES

1968-1980

This appendix shows the summary measures of revisions calculated for the various and differently timed quarterly and annual GNP and component estimates. The 13-year period covers the first quarter of 1968 through the third quarter of 1980 generally for the quarterly estimates and through 1979 for the annual estimates. Bias, relative bias, dispersion, relative dispersion, and the range of revision are shown for quarterly and annual estimates. Directional misses are shown for the quarterly estimates and the average percent of the benchmark level is shown for the annual estimates. The range of revision was calculated as the difference between the largest positive and largest negative revisions. Except for the annual estimates' relative level, which is the average percent of the benchmark level, all of the measures shown are based on quarter-to-quarter or year-to-year percent changes except where indicated as dollar changes. The summary measures are listed separately for the income and product side components 15-day, 45-day, 75-day, and first July quarterly estimates and 15-day, 45-day, 75-day, first July, second July, and third July annual estimates compared to latest available estimates, the 1972 benchmark estimates published in December 1980.

Summary Measures of GNP Revisions15-Day Product Side Quarterly Estimates Compared to Latest

1968-1980

GNP components	Quarterly changes		Relative bias		Dispersion	Relative dispersion	Directional misses (number)	Range of revision
	(number)	Bias						
GNP	50	-.22	-	9.45	.42	18.01	1	2.21
Personal consumption expenditures	50	-.15	-	6.12	.31	13.04	1	2.18
Durable goods	50	-.22	-	10.46	.99	28.49	7	8.10
Nondurable goods	50	-.12	-	5.57	.47	21.13	0	3.08
Services	50	-.14	-	5.40	.36	13.58	0	2.45
Gross private domestic investment	50	-.53	-	22.63	1.93	45.49	1	15.92
Fixed investment	50	-.31	-	12.75	.89	29.75	5	5.25
Nonresidential	50	-.18	-	7.44	.95	33.94	2	5.50
Structures	50	-.40	-	16.02	1.93	69.36	12	10.71
Producers' durable equipment	50	-.08	-	3.34	1.28	41.73	2	7.39
Residential	50	-.63	-	26.31	2.35	46.33	8	12.88
Nonfarm structures	50	-.61	-	25.51	2.33	44.90	6	13.97
Farm structures	50	-4.45	-	65.37	21.85	87.63	16	174.55
Producers' durable equipment	19	-.45	-	18.21	5.00	177.79	2	21.21
Change in business inventories (note a)	50	-.50		121.84	3.99	58.33	16	21.80
Nonfarm (note a)	50	-.34		101.20	3.92	56.67	15	24.60
Farm (note a)	50	-.17		220.51	1.44	112.64	23	18.30
Net exports of goods and services (note a)	50	-1.00		-123.27	2.61	56.94	17	19.90
Exports	50	-.88		-21.63	1.81	35.37	9	13.05
Imports	50	-.40		-10.10	1.68	30.27	6	9.96
Government purchases of goods and services	50	.05		2.25	.71	34.14	1	4.56
Federal	50	.25		17.22	1.42	62.56	13	10.71
National defense	50	.27		23.96	1.39	66.92	9	7.39
Nondefense	50	.10		4.16	3.52	72.82	9	19.98
State and local	50	-.07		-2.70	.58	22.87	0	3.61
GNP constant (1972) dollars	50	-.13		-18.30	.44	40.00	3	1.99
Implicit price deflator	50	-.09		-5.60	.22	13.60	0	1.23

a/Averages in billions of dollars.

Summary Measures of GNP Revisions
45-Day Product Side Quarterly Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						
	<u>Quarterly changes (number)</u>	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Directional misses (number)</u>	<u>Range of revision</u>
GNP	50	- .15	- 6.32	.39	16.60	1	2.02
Personal consumption expenditures	50	- .11	- 4.67	.32	13.27	1	2.24
Durable goods	50	- .18	- 8.50	1.06	30.51	7	7.14
Nondurable goods	50	- .08	- 3.47	.44	19.68	0	3.09
Services	50	- .12	- 4.48	.34	13.09	0	1.68
Gross private domestic investment	50	- .23	- 9.98	2.02	47.48	3	18.27
Fixed investment	50	- .14	- 5.70	.82	27.31	5	4.94
Nonresidential	50	- .04	- 1.67	.92	32.62	2	5.63
Structures	50	- .04	- 1.80	1.68	60.15	8	10.08
Producers' durable equipment	50	- .04	- 1.67	1.25	40.93	3	7.14
Residential	50	- .37	- 15.54	2.30	45.32	7	12.65
Nonfarm structures	50	- .38	- 15.62	2.34	45.13	6	14.03
Farm structures	50	-4.27	- 62.69	22.03	88.36	16	174.55
Producers' durable equipment	19	.36	14.60	3.67	130.39	1	17.44
Change in business inventories (note a)	50	- .35	83.98	3.99	58.39	13	21.40
Nonfarm (note a)	50	- .25	73.65	3.86	55.86	13	23.80
Farm (note a)	50	- .10	123.08	1.43	111.70	18	18.00
Net exports of goods and services (note a)	50	- .71	- 87.62	2.08	45.50	11	14.50
Exports	50	- .40	- 9.77	1.50	29.34	5	11.19
Imports	50	.02	.42	1.31	23.61	4	9.16
Government purchases of goods and services	50	.02	.98	.67	32.42	1	4.58
Federal	50	.12	8.33	1.35	59.43	11	12.48
National defense	50	.14	12.36	1.31	62.99	9	8.90
Nondefense	50	.04	1.46	3.36	69.58	10	20.95
State and local	50	- .04	- 1.67	.56	22.03	0	3.66
GNP constant (1972) dollars	50	- .09	12.70	.43	39.10	0	2.16
Implicit price deflator	50	- .06	3.70	.22	13.60	0	1.33

a/Averages in billions of dollars.

Summary Measures of GNP Revisions

75-Day Product Side Quarterly Estimates Compared to Latest

<u>GNP components</u>	<u>Quarterly changes (number)</u>	<u>1968-1980</u>		<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Directional misses (number)</u>	<u>Range of revision</u>
		<u>Bias</u>	<u>Relative bias</u>				
GNP	25	- .15	- 6.17	.44	17.53	1	2.20
Personal consumption expenditures	12	- .09	- 3.37	.20	7.25	0	.82
Durable goods	12	- .18	- 18.81	.60	17.23	1	3.54
Non-durable goods	12	- .14	- 4.77	.35	12.41	0	1.60
Services	12	- .02	- .60	.34	11.22	0	1.75
Gross private domestic investment	12	.00	- .23	1.13	34.46	0	4.39
Fixed investment	12	- .06	- 2.85	.60	17.88	0	2.48
Nonresidential	12	- .02	- .60	.81	22.96	0	4.19
Structures	12	- .11	- 2.45	.75	16.50	0	3.00
Producers' durable equipment	12	- .04	- 1.63	1.00	29.27	1	6.02
Residential	12	- .14	-551.44	1.43	36.58	3	6.41
Nonfarm structures	12	- .14	333.64	1.56	38.43	2	6.60
Farm structures	12	-2.14	- 58.22	15.82	81.08	4	69.90
Producers' durable equipment	12	.33	16.45	4.87	192.19	1	17.44
Change in business inventories (note a)	12	.31	- 27.61	3.33	39.12	1	10.40
Nonfarm (note a)	12	.42	- 36.17	2.37	27.80	0	11.50
Farm (note a)	12	- .12	-200.00	1.78	182.91	4	7.80
Net exports of goods and services (note a)	25	- .73	373.47	1.53	38.38	4	14.60
Exports	25	- .44	- 11.98	1.29	25.41	3	7.91
Imports	25	- .13	- 3.09	1.32	17.47	1	6.56
Government purchases of goods and services	12	- .05	- 1.96	.46	17.78	0	1.79
Federal	12	- .15	- 5.44	1.15	36.39	0	4.21
National defense	12	- .18	- 6.45	.83	30.04	0	3.40
Nondefense	12	- .02	- .74	3.36	55.66	0	12.10
State and local	12	.02	.89	.33	13.68	0	2.10
GNP constant (1972) dollars	25	- .14	- 22.50	.45	37.80	1	2.18
Implicit price deflator	25	- .03	- 1.60	.21	11.30	0	1.21

a/Averages in billions of dollars

Summary Measures of GNP Revisions1st July Product Side Quarterly Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						
	<u>Quarterly changes</u> (number)	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Directional misses</u> (number)	<u>Range of revision</u>
GNP	39	- .07	- 2.91	.26	10.99	0	1.92
Personal consumption expenditures	39	- .11	- 4.70	.28	11.72	0	1.32
Durable goods	39	- .08	- 3.14	.97	29.26	4	5.87
Nondurable goods	39	- .05	- 2.48	.37	17.38	0	2.33
Services	39	- .17	- 6.80	.36	14.04	0	2.09
Gross private domestic investment	39	- .02	- .77	1.96	42.77	4	13.20
Fixed investment	39	- .11	- 3.61	.64	19.88	4	3.24
Nonresidential Structures	39	- .13	- 4.83	.83	28.03	1	4.00
Producers' durable equipment	39	.06	2.67	1.46	53.70	5	9.27
Residential	39	- .23	- 8.42	1.14	36.05	2	6.17
Nonfarm structures	39	.01	.34	1.62	31.45	6	12.43
Farm structures	39	.04	1.10	1.57	29.85	4	11.94
Producers' durable equipment	39	-3.98	-52.87	17.94	63.74	9	184.44
Change in business inventories (note a)	-	-	-	-	-	-	-
Nonfarm (note a)	39	.03	5.24	3.99	67.61	12	25.60
Farm (note a)	39	.06	14.29	3.90	61.37	12	24.00
Farm (note a)	39	- .02	- 9.57	.78	90.24	6	7.00
Net exports of goods and services (note a)	39	- .10	-25.33	1.53	45.43	7	11.90
Exports	39	- .11	- 2.92	1.27	25.41	6	5.86
Imports	39	- .12	- 3.45	.88	17.47	2	4.67
Government purchases of goods and services	39	.08	4.38	.41	21.96	1	1.18
Federal	39	- .01	- 1.36	.96	50.46	4	4.75
National defense	39	- .04	- 7.12	1.04	57.61	5	5.59
Nondefense	39	- .03	- 1.41	2.17	52.28	6	13.96
State and local	39	.13	5.16	.48	19.07	0	2.26
GNP constant (1972) dollars	39	.00	.00	.31	26.50	0	1.47
Implicit price deflator	39	- .07	- 4.90	.19	12.00	0	.94

a/Averages in billions of dollars.

Summary Measures of GNP Revisions15-Day Product Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>Annual changes</u> (number)	<u>1968-1980</u>		<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
		<u>Bias</u>	<u>Relative bias</u>				
GNP	11	-.47	- 4.88	.58	6.01	98.48	2.10
Personal consumption expenditures	11	-.50	- 5.11	.64	6.45	99.03	1.95
Durable goods	11	-.75	- 8.03	1.05	10.76	99.76	4.85
Nondurable goods	11	-.19	- 2.02	.66	7.25	99.93	2.96
Services	11	-.73	- 6.81	.93	8.60	97.95	2.38
Gross private domestic investment	11	-.98	- 8.57	2.51	17.98	93.41	11.12
Fixed investment	11	-.80	- 7.10	1.04	9.09	94.61	3.52
Nonresidential	11	-.51	- 4.65	1.52	13.86	96.44	5.74
Structures	11	-.26	- 2.40	1.17	10.85	97.10	6.46
Producers' durable equipment	11	-.70	- 6.29	2.31	20.60	96.25	9.02
Residential	11	-1.22	- 9.37	2.06	12.08	90.07	8.13
Nonfarm structures	11	-1.35	-10.29	2.11	12.09	90.63	7.09
Farm structures	11	-9.24	-68.67	20.88	103.10	83.26	73.21
Producers' durable equipment	5	-.16	- 1.64	5.30	52.81	67.97	18.83
Change in business inventories (note a)	11	-.72	-82.29	3.32	44.08	90.89	16.30
Nonfarm (note a)	11	-.39	-76.79	2.61	32.39	83.45	11.30
Farm (note a)	11	-.36	-97.50	1.46	59.19	81.70	6.40
Net exports of goods and services (note a)	11	-.19	-23.08	.72	9.31	150.30	2.40
Exports	11	-.89	- 5.21	1.35	7.92	100.00	5.90
Imports	11	-.74	- 4.25	1.55	8.64	99.28	8.65
Government purchases of goods and services	11	.16	1.92	1.10	13.36	100.43	4.15
Federal	11	.44	8.63	.88	15.87	101.31	3.66
National defense	11	.32	8.92	1.12	21.37	101.04	4.35
Nondefense	11	.63	6.59	2.58	27.08	102.26	9.65
State and local	11	-.03	- .32	1.38	13.01	99.76	4.76
GNP constant (1972) dollars	11	-.58	-18.40	.77	22.10	97.80	2.51
Implicit price deflator	11	.10	1.60	.51	8.00	100.60	2.89

a/Averages in billions of dollars.

Summary Measures of GNP Revisions45-Day Product Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>Annual changes (number)</u>	<u>1968-1980</u>					
		<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level (percent)</u>	<u>Range of revision</u>
GNP	11	- .47	- 4.88	.57	5.89	98.48	2.04
Personal consumption expenditures	11	- .49	- 4.97	.60	6.06	99.05	1.80
Durable goods	11	- .70	- 7.51	.98	10.05	99.80	4.47
Nondurable goods	11	- .19	- 2.08	.65	7.07	99.93	2.91
Services	11	- .72	- 6.63	.93	8.57	97.96	2.38
Gross private domestic investment	11	- .98	- 8.58	2.37	17.00	93.43	9.93
Fixed investment	11	- .74	- 6.54	1.07	9.34	94.65	3.74
Nonresidential	11	- .45	- 4.15	1.56	14.28	96.49	6.00
Structures	11	- .16	- 1.52	1.10	10.19	97.18	6.28
Producers' durable equipment	11	- .67	- 5.97	2.35	20.99	96.28	9.71
Residential	11	-1.43	- 10.99	2.30	13.51	90.08	8.12
Nonfarm structures	11	-1.29	- 9.86	2.09	12.01	90.65	7.29
Farm structures	11	-9.24	- 68.67	20.88	103.10	83.26	73.21
Producers' durable equipment	5	- .16	- 1.64	5.30	52.81	67.97	18.83
Change in business inventories (note a)	11	- .81	- 92.71	3.26	43.36	90.83	14.10
Nonfarm (note a)	11	- .54	-105.36	2.45	30.36	83.28	9.90
Farm (note a)	11	- .29	- 80.00	1.44	58.09	106.27	6.40
Net exports of goods and services (note a)	11	- .41	- 49.45	.85	10.95	151.75	3.50
Exports	11	- .76	- 4.48	1.29	7.59	99.99	6.10
Imports	11	- .47	- 2.73	1.40	7.78	99.47	8.69
Government purchases of goods and services	11	.15	1.82	1.04	12.67	100.43	4.00
Federal	11	.46	8.90	.93	16.82	101.32	3.56
National defense	11	.24	6.79	1.07	20.40	100.97	4.15
Nondefense	11	.79	8.28	2.74	28.77	102.38	9.20
State and local	11	- .01	- .12	1.36	12.84	99.78	4.67
GNP constant (1972) dollars	11	- .58	- 18.40	.77	22.10	97.80	2.48
Implicit price deflator	11	.17	2.70	.46	7.20	100.70	2.30

a/Averages in billions of dollars.

Summary Measures of GNP Revisions75-Day Product Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						
	<u>Annual changes</u> (number)	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
GNP	6	- .51	- 4.88	.70	6.64	98.36	2.05
Personal consumption expenditures	3	- .51	- 4.35	.51	4.35	99.92	.55
Durable goods	3	- .61	- 5.68	.61	5.68	100.00	.70
Nondurable goods	3	- .57	- 5.26	.67	6.11	99.62	1.31
Services	3	- .43	- 3.40	.79	6.16	100.17	1.46
Gross private domestic investment	3	- 1.69	- 9.73	1.69	9.73	92.16	3.66
Fixed investment	3	- 1.18	- 6.77	1.18	6.77	92.53	1.97
Nonresidential	3	- 1.49	- 8.67	1.51	8.80	91.62	3.74
Structures	3	- .01	- .03	.32	1.77	98.44	.86
Producers' durable equipment	3	- 2.43	- 14.44	2.43	14.44	88.28	5.57
Residential	3	- .19	- 1.03	1.00	5.37	94.54	2.81
Nonfarm structures	3	- .10	- .50	1.11	5.88	95.37	3.05
Farm structures	3	-15.83	- 84.23	19.53	103.94	85.56	32.23
Producers' durable equipment	3	- 2.61	- 22.92	2.80	24.62	65.07	6.57
Change in business inventories (note a)	3	- 1.50	- 78.95	1.83	36.91	87.69	4.80
Nonfarm (note a)	3	- .13	80.00	2.60	47.85	94.80	7.70
Farm (note a)	3	- 1.43	- 70.49	1.43	62.32	- 11.18	2.90
Net exports of goods and services (note a)	6	- 1.15	862.50	1.28	12.26	154.84	3.00
Exports	6	- .92	- 5.28	1.87	10.72	99.62	6.30
Imports	6	- .07	- .34	1.79	8.67	100.07	8.79
Government purchases of goods and services	3	.22	2.35	.33	3.47	100.33	.63
Federal	3	- .17	- 1.83	.42	4.62	100.18	.99
National defense	3	- 1.11	- 12.36	1.21	13.49	99.32	1.96
Nondefense	3	- 1.67	17.39	1.67	17.39	101.89	1.90
State and local	3	.48	5.00	.54	5.65	100.41	1.25
GNP constant (1972) dollars	6	- .56	- 19.60	.77	22.50	97.80	2.11
Implicit price deflator	6	.11	1.50	.40	5.40	100.60	1.89

a/Averages in billions of dollars.

Summary Measures of GNP Revisions

1st July Product Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						<u>Range of revision</u>
	<u>Annual changes (number)</u>	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level (percent)</u>	
GNP	9	-.34	- 3.51	.51	5.25	98.88	1.63
Personal consumption expenditures	9	-.28	- 2.91	.48	5.00	99.44	1.30
Durable goods	9	-.27	- 2.43	.62	5.59	100.53	2.13
Nondurable goods	9	-.03	- .39	.50	6.05	100.05	2.55
Services	9	-.52	- 4.90	.79	7.41	98.50	2.33
Gross private domestic investment	9	-1.06	- 8.22	2.24	14.15	94.05	8.21
Fixed investment	9	-.48	- 3.88	.82	6.61	95.07	3.15
Nonresidential	9	-.55	- 5.19	1.49	14.03	96.57	4.33
Structures	9	.42	4.40	1.80	18.69	97.48	7.17
Producers' durable equipment	9	-1.04	- 7.20	1.58	13.96	96.28	5.41
Residential	9	-.13	- .76	1.43	7.76	91.35	5.51
Nonfarm structures	9	-.15	- .89	1.29	6.90	91.87	4.33
Farm structures	9	.94	13.59	4.65	30.50	88.28	30.96
Producers' durable equipment	4	3.42	35.36	6.20	64.11	26.86	13.22
Change in business inventories (note a)	9	-1.29	-62.37	3.09	37.67	95.39	11.90
Nonfarm (note a)	9	-1.29	-87.88	2.93	33.25	87.56	11.30
Farm (note a)	9	.02	3.77	.38	18.38	139.97	1.50
Net exports of goods and services (note a)	9	-.09	19.51	.40	5.14	134.48	1.60
Exports	9	-.63	- 4.50	.72	5.12	100.38	3.66
Imports	9	-.66	- 4.55	.76	4.97	99.63	3.36
Government purchases of goods and services	9	.17	2.20	.55	7.24	100.48	1.95
Federal	9	.10	2.28	.68	14.31	100.84	3.00
National defense	9	.07	3.01	.65	14.34	100.72	3.34
Nondefense	9	.38	4.19	1.43	15.62	101.57	7.96
State and local	9	.13	1.21	.86	8.38	100.18	2.72
GNP constant (1972) dollars	9	.21	5.90	.73	19.00	98.40	2.11
Implicit price deflator	9	-.54	- 9.20	.58	9.80	100.50	1.80

a/Averages in billions of dollars.

Summary Measures of GNP Revisions2nd July Product Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						
	<u>Annual changes</u> (number)	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
GNP	8	- .15	- 1.70	.24	2.72	99.08	.77
Personal consumption expenditures	8	- .08	- .90	.28	2.96	99.66	.71
Durable goods	8	- .33	- 3.60	.37	3.77	100.85	1.20
Nondurable goods	8	.11	1.29	.33	3.98	100.09	1.03
Services	8	- .18	- 1.73	.67	6.33	98.85	2.35
Gross private domestic investment	8	- .60	- 5.96	1.70	12.52	94.74	4.89
Fixed investment	8	- .76	- 7.60	.76	7.47	95.27	1.76
Nonresidential	8	- .85	- 9.94	.92	10.73	96.77	3.42
Structures	8	- .20	- 2.76	.98	13.29	97.60	4.73
Producers' durable equipment	8	-1.14	-12.12	1.19	12.70	96.45	4.57
Residential	8	- .24	- 1.66	1.53	7.74	91.51	5.85
Nonfarm structures	8	- .17	- 1.20	1.25	6.16	92.11	4.82
Farm structures	8	- .56	- 3.49	5.28	20.83	87.86	31.27
Producers' durable equipment	4	2.44	31.03	9.39	119.25	29.07	27.44
Change in business inventories (note a)	8	.20	33.33	2.10	24.42	102.30	6.60
Nonfarm (note a)	8	.05	5.88	2.13	23.29	98.68	7.00
Farm (note a)	8	.13	-52.63	.13	4.88	108.44	.30
Net exports of goods and services (note a)	8	.11	- 4.09	.49	7.25	107.64	2.10
Exports	8	.63	5.14	1.05	8.58	100.89	1.52
Imports	8	.66	4.14	.93	5.51	100.24	6.16
Government purchases of goods and services	8	.03	.38	.51	6.34	100.24	2.24
Federal	8	.28	5.69	.47	8.39	100.68	1.42
National defense	8	.31	11.77	.62	12.74	100.72	1.77
Nondefense	8	.33	2.90	1.14	10.05	100.74	4.59
State and local	8	- .17	- 1.63	.77	7.31	99.97	2.86
GNP constant (1972) dollars	8	- .13	- 5.00	.37	12.10	98.20	1.53
Implicit price deflator	8	- .01	- .20	.35	5.70	100.90	1.64

a/Averages in billions of dollars.

Summary Measures of GNP Revisions3rd July Product Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>Annual changes</u> (number)	<u>1968-1980</u>					
		<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
GNP	7	- .10	- 1.20	.25	2.84	99.15	.97
Personal consumption expenditures	7	.05	.58	.29	3.12	99.74	.82
Durable goods	7	.23	2.77	.47	5.36	101.14	1.78
Nondurable goods	7	.11	1.32	.49	5.75	100.03	1.65
Services	7	- .06	-.57	.52	5.20	98.99	1.61
Gross private domestic investment	7	- .56	- 6.92	1.65	13.73	95.05	4.47
Fixed investment	7	- .52	- 6.54	.62	7.60	95.73	1.58
Nonresidential	7	- .59	- 7.29	.86	10.54	97.26	2.85
Structures	7	- .16	- 2.12	.40	5.02	98.23	2.02
Producers' durable equipment	7	- .84	- 10.01	1.26	15.03	96.78	4.40
Residential	7	- .17	- 1.92	.97	6.41	91.79	4.23
Nonfarm structures	7	- .04	-.47	.81	5.16	92.41	3.49
Farm structures	7	2.08	15.91	7.40	31.11	88.26	28.58
Producers' durable equipment	4	-4.09	- 46.34	7.92	89.72	32.13	21.55
Change in business inventories (note a)	7	- .23	-114.29	2.20	23.55	98.95	7.90
Nonfarm	7	- .24	- 58.62	2.21	22.43	96.48	7.90
Farm	7	.01	7.14	.01	.51	113.46	.10
Net exports of goods and services (note a)	7	- .09	4.65	.46	6.97	106.27	2.00
Exports	7	- .15	-.85	.64	3.71	100.38	1.75
Imports	7	- .01	-.04	.23	1.33	99.84	.92
Government purchases of goods and services	7	- .20	- 2.51	.36	4.57	100.09	1.26
Federal	7	- .10	- 2.92	.28	6.99	100.32	1.26
National defense	7	- .04	- 3.56	.72	18.88	100.51	2.16
Nondefense	7	- .11	- 1.10	1.38	14.57	99.84	4.08
State and local	7	- .26	- 2.27	.45	3.97	99.99	1.35
GNP constant (1972) dollars	7	- .11	- 5.00	.22	8.00	98.40	.85
Implicit price deflator	7	.07	1.10	.26	4.10	100.80	.93

a/Averages in billions of dollars.

Summary Measures of GNP Revisions15-Day Income Side Quarterly Estimates Compared to Latest1968-1980

<u>GNP components</u>	<u>Quarterly changes (number)</u>	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Directional misses (number)</u>	<u>Range of revision</u>
Compensation of employees	50	- .17	- 7.37	.25	10.57	1	1.20
Wages and salaries	50	- .14	- 6.37	.24	10.90	0	1.29
Government and government enterprises	50	- .08	- 3.68	.34	16.70	0	4.71
Other	50	- .16	- 6.91	.28	12.15	1	1.63
Supplements to wages and salaries	50	- .42	-12.35	.57	16.70	0	4.81
Employer contributions for social insurance	50	- .16	- 4.89	.62	19.27	1	6.97
Other labor income	50	- .72	-19.86	.85	23.47	0	3.50
Proprietors' income with inventory valuation adjustment	50	- .69	-41.48	2.41	86.47	10	14.13
Farm	50	-1.80	-85.45	8.46	98.35	18	53.13
Nonfarm	50	- .08	- 4.92	1.21	59.51	7	5.70
Rental income of persons	50	- .31	-14.73	1.44	58.38	3	16.12
Corporate profits with inventory valuation adjustment	0	-	-	-	-	-	-
Profits before tax	0	-	-	-	-	-	-
Profits tax liability	0	-	-	-	-	-	-
Profits after tax	0	-	-	-	-	-	-
Dividends	50	- .11	- 5.59	1.27	56.14	8	13.47
Undistributed profits	0	-	-	-	-	-	-
Net interest	50	- .62	-16.38	1.86	49.10	1	12.89
National income without capital consumption adjustment	0	-	-	-	-	-	-
Business transfer payments	50	- .41	-16.54	2.12	76.51	4	18.89
Indirect business tax and nontax liability	50	- .02	- 1.14	.43	19.88	0	2.70
Subsidies less current surplus of government enterprises (note a)	50	- .09	-90.20	.58	71.05	12	11.00
Capital consumption allowances	48	- .59	-24.19	.80	31.83	1	3.85

a/Averages in billions of dollars.

Summary Measures of GNP Revisions45-Day Income Side Quarterly Estimates Compared to Latest

<u>GNP components</u>	<u>Quarterly changes (number)</u>	<u>1968-1980</u>					
		<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Directional misses (number)</u>	<u>Range of revision</u>
Compensation of employees	50	-.12	- 5.17	.23	9.72	1	1.15
Wages and salaries	50	-.08	- 3.83	.22	10.06	0	1.23
Government and government enterprises	50	-.02	- 1.06	.29	14.31	0	3.60
Other	50	-.10	- 4.60	.26	11.38	1	1.53
Supplements to wages and salaries	50	-.41	-11.96	.56	16.31	0	4.81
Employer contributions for social insurance	50	-.12	- 3.72	.61	19.10	1	6.97
Other labor income	50	-.72	-19.83	.84	23.36	0	3.50
Proprietors' income with inventory valuation adjustment	50	-.31	-18.67	2.16	77.64	11	14.20
Farm	50	-.75	-35.85	7.88	91.70	18	53.13
Nonfarm	50	-.04	- 2.45	1.17	57.43	8	5.68
Rental income of persons	50	-.29	-13.61	1.46	59.26	4	15.31
Corporate profits with inventory valuation adjustment	50	.07	3.31	3.40	66.39	12	20.40
Profits before tax	50	.21	8.92	2.60	48.15	8	16.56
Profits tax liability	50	.61	34.45	3.20	56.44	12	18.03
Profits after tax	50	-.02	- .70	2.68	47.78	10	16.98
Dividends	50	-.12	- 6.07	1.29	57.08	8	13.47
Undistributed profits	50	.30	8.92	4.57	53.13	13	27.94
Net interest	50	-.56	-14.86	1.83	48.16	1	12.42
National income without capital consumption adjustment	50	-.14	- 6.11	.39	16.63	0	2.48
Business transfer payments	50	-.39	-15.72	2.14	77.24	4	18.89
Indirect business tax and nontax liability	50	.07	3.38	.44	20.12	0	2.99
Subsidies less current surplus of government enterprises (note a)	50	-.01	- 7.84	.46	55.47	8	11.30
Capital consumption allowances	48	-.50	-20.40	.85	34.00	1	6.95

a/Averages in billions of dollars.

Summary Measures of GNP Revisions

75-Day Income Side Quarterly Estimates Compared to Latest

<u>GNP components</u>	<u>Quarterly changes (number)</u>	<u>1968-1980</u>				<u>Directional misses (number)</u>	<u>Range of revision</u>
		<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>		
Compensation of employees	12	- .08	- 2.76	.22	7.98	0	1.06
Wages and salaries	12	- .11	- 4.43	.21	8.06	0	.96
Government and government enterprises	12	- .18	- 9.41	.20	10.30	0	.63
Other	12	- .10	- 3.54	.24	8.81	0	1.21
Supplements to wages and salaries	12	.14	3.93	.30	8.83	0	1.48
Employer contributions for social insurance	12	.22	7.04	.51	16.14	0	2.69
Other labor income	12	.08	2.07	.35	9.33	0	1.35
Proprietors' income with inventory valuation adjustment	12	- .25	-11.96	1.68	51.06	2	8.30
Farm	12	-2.76	-67.03	6.46	81.54	5	36.27
Nonfarm	12	.58	34.74	1.50	57.55	1	4.24
Rental income of persons	12	- .06	- 1.76	.86	25.37	0	4.70
Corporate profits with inventory valuation adjustment	49	.15	7.83	3.15	61.48	10	17.29
Profits before tax	49	.31	14.32	2.60	48.72	8	18.77
Profits tax liability	49	.55	34.73	3.13	56.07	12	18.53
Profits after tax	49	.21	8.14	2.65	47.71	8	19.57
Dividends	49	.07	2.25	1.00	34.24	0	7.69
Undistributed profits	49	.72	22.68	4.60	53.92	10	32.41
Net interest	12	- .85	-17.46	1.38	28.37	0	4.48
National income without capital consumption adjustment	49	- .13	- 5.54	.40	16.95	0	2.49
Business transfer payments	12	1.46	72.13	1.46	72.13	0	1.79
Indirect business tax and nontax liability	12	.28	14.64	.33	15.28	0	.92
Subsidies less current surplus of government enterprises (note a)	12	- .02	-11.11	.48	29.53	2	7.90
Capital consumption allowances	12	-1.06	-35.96	1.06	35.96	0	1.98

a/Averages in billions of dollars.

Summary Measures of GNP Revisions1st July Income Side Quarterly Estimates Compared to Latest

<u>GNP components</u>	<u>Quarterly changes (number)</u>	<u>1968-1980</u>					
		<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Directional misses (number)</u>	<u>Range of revision</u>
Compensation of employees	39	-.06	- 2.50	.16	6.86	0	1.18
Wages and salaries	39	-.03	- 1.16	.16	7.06	0	1.23
Government and government enterprises	39	-.10	- 4.93	.18	8.74	0	1.89
Other	39	-.01	- .33	.20	8.46	1	1.15
Supplements to wages and salaries	39	-.33	- 9.70	.57	16.57	0	3.83
Employer contributions for social insurance	39	-.01	- .20	.65	19.38	1	4.84
Other labor income	39	-.66	-18.39	.85	23.93	0	3.74
Proprietors' income with inventory valuation adjustment	39	.27	11.92	1.60	58.27	4	8.67
Farm	39	-.18	- 4.14	6.13	67.15	9	37.85
Nonfarm	39	.35	21.80	1.06	59.90	6	5.40
Rental income of persons	39	-.52	-25.40	1.49	60.15	4	11.24
Corporate profits with inventory valuation adjustment	39	.47	15.73	2.43	45.60	8	13.88
Profits before tax	39	.12	4.09	1.94	38.21	6	9.81
Profits tax liability	39	.41	16.84	1.93	36.58	6	13.34
Profits after tax	39	-.06	- 1.96	2.00	38.07	6	10.84
Dividends	39	-.01	- .57	1.28	58.02	6	9.24
Undistributed profits	39	.40	9.71	3.91	46.91	6	21.34
Net interest	39	-.51	-16.29	1.42	44.57	1	7.19
National income without capital consumption adjustment	39	-.03	- 1.13	.27	11.14	1	1.94
Business transfer payments	39	-.46	-17.58	2.11	72.19	3	17.25
Indirect business tax and nontax liability	39	.02	1.05	.30	13.76	0	2.21
Subsidies less current surplus of government enterprises (note a)	39	.01	9.52	.36	45.45	6	8.70
Capital consumption allowances	39	-.28	-12.51	.66	28.11	0	2.71

a/Averages in billions of dollars.

Summary Measures of GNP Revisions15-Day Income Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>Annual changes</u> (number)	<u>1968-1980</u>		<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
		<u>Bias</u>	<u>Relative bias</u>				
Compensation of employees	11	- .35	- 3.57	.43	4.33	98.93	.95
Wages and salaries	11	- .19	- 2.04	.28	3.06	99.18	.99
Government and government enterprises	11	- .25	- 2.98	.61	7.19	99.23	2.79
Other	11	- .18	- 1.93	.33	3.53	99.17	1.29
Supplements to wages and salaries	11	-1.63	- 11.18	2.14	14.62	96.99	8.54
Employer contributions for social insurance	11	- .29	- 2.07	1.83	12.97	99.54	8.53
Other labor income	11	-2.99	- 19.73	3.41	22.51	94.57	9.32
Proprietors' income with inventory valuation adjustment	11	- .70	- 9.31	2.36	28.45	98.88	10.62
Farm	11	-4.29	- 36.47	8.62	45.42	107.07	48.18
Nonfarm	11	.32	4.73	2.11	31.04	96.30	10.57
Rental income of persons	11	-1.86	- 21.68	3.03	35.28	89.22	11.36
Corporate profits with inventory valuation adjustment	11	1.14	11.97	5.52	37.85	101.69	20.32
Profits before tax	11	.98	9.11	4.04	28.61	100.46	13.45
Profits tax liability	11	2.19	27.06	5.20	47.82	103.75	22.54
Profits after tax	11	.15	1.22	3.60	21.95	98.37	13.20
Dividends	11	- .11	- 1.42	3.45	43.40	107.01	6.50
Undistributed profits	11	1.53	9.44	6.98	29.35	93.13	23.82
Net interest	11	-3.39	- 21.92	5.37	34.76	92.77	17.03
National income without capital consumption adjustment	11	- .42	- 4.26	.50	5.06	98.50	1.56
Business transfer payments	11	-1.42	- 14.36	5.97	60.53	97.49	26.28
Indirect business tax and nontax liability	11	.05	.63	.60	7.33	99.12	2.31
Subsidies less current surplus of government enterprises (note a)	11	- .23	-147.06	.56	53.04	74.93	2.20
Capital consumption allowances	11	-1.79	- 18.16	2.30	23.36	101.75	7.22

a/Averages in billions of dollars.

Summary Measures of GNP Revisions45-Day Income Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						
	<u>Annual changes (number)</u>	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level (percent)</u>	<u>Range of revision</u>
Compensation of employees	11	- .34	- 3.47	.43	4.36	98.94	.98
Wages and salaries	11	- .18	- 1.93	.28	3.07	99.19	1.03
Government and government enterprises	11	- .24	- 2.87	.60	7.08	99.24	2.79
Other	11	- .17	- 1.84	.34	3.56	99.18	1.35
Supplements to wages and salaries	11	-1.61	- 11.03	2.12	14.47	97.01	8.40
Employer contributions for social insurance	11	- .28	- 1.96	1.82	12.86	99.55	8.24
Other labor income	11	-2.99	- 19.73	3.41	22.51	94.57	9.32
Proprietors' income with inventory valuation adjustment	11	- .62	- 8.33	2.39	28.77	98.93	10.62
Farm	11	-4.08	- 34.71	8.49	44.75	107.24	48.18
Nonfarm	11	.34	5.09	2.14	31.41	96.32	10.70
Rental income of persons	11	-1.86	- 21.68	3.03	35.28	89.22	11.36
Corporate profits with inventory valuation adjustment	11	.95	9.97	5.61	38.43	101.55	20.93
Profits before tax	11	.78	7.22	4.11	29.15	100.29	14.10
Profits tax liability	11	1.93	23.91	5.23	48.10	103.53	22.87
Profits after tax	11	.04	.32	3.83	23.33	98.26	13.42
Dividends	11	- .11	- 1.42	3.45	43.40	107.01	6.50
Undistributed profits	11	1.23	7.56	6.97	29.32	92.85	24.95
Net interest	11	-3.42	- 22.11	5.38	34.79	92.75	16.89
National income without capital consumption adjustment	11	- .43	- 4.34	.49	4.97	98.49	1.50
Business transfer payments	11	-1.42	- 14.36	5.97	60.53	97.49	26.28
Indirect business tax and nontax liability	11	.07	.84	.61	7.37	99.13	2.31
Subsidies less current surplus of government enterprises (note a)	11	- .23	-147.06	.54	51.30	74.99	2.00
Capital consumption allowances	11	-1.79	- 18.16	2.30	23.36	101.75	7.22

a/Averages in billions of dollars.

Summary Measures of GNP Revisions75-Day Income Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						
	<u>Annual changes</u> (number)	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
Compensation of employees	3	- .04	- .33	.32	2.67	100.12	.93
Wages and salaries	3	- .18	- 1.56	.49	4.21	99.85	1.04
Government and govern- ment enterprises	3	- .56	- 7.19	.56	7.19	98.73	.62
Other	3	- .10	- .75	.55	4.38	100.13	1.34
Supplements to wages and salaries	3	.76	4.94	1.09	7.04	101.64	3.25
Employer contributions for social insurance	3	1.16	7.86	1.29	8.76	100.96	3.37
Other labor income	3	.32	1.98	1.23	7.64	102.21	3.16
Proprietors' income with inventory valuation adjust- ment	3	1.30	10.86	1.30	10.86	97.70	1.91
Farm	3	- 2.71	-14.98	7.68	41.09	103.01	21.85
Nonfarm	3	2.23	21.60	2.23	21.60	96.19	4.72
Rental income of persons	3	- 1.85	-12.73	2.18	15.00	96.58	4.68
Corporate profits with inven- tory valuation adjustment	11	.92	9.68	5.51	37.80	101.52	22.31
Profits before tax	11	.72	6.68	3.98	28.23	100.20	14.18
Profits tax liability	11	1.85	22.93	5.19	47.80	103.43	24.31
Profits after tax	11	.01	.05	3.65	22.22	98.19	13.02
Dividends	3	2.84	27.50	3.45	33.33	106.26	3.00
Undistributed profits	11	1.28	7.92	7.10	29.87	92.75	24.79
Net interest	3	- 3.43	-18.96	3.43	18.96	94.08	3.82
National income without capital consumption adjustment	11	- .42	- 4.32	.49	4.97	98.50	1.65
Business transfer payments	3	5.17	86.38	5.17	86.38	113.75	4.49
Indirect business tax and nontax liability	3	.56	7.40	.56	7.40	100.07	.37
Subsidies less current surplus of government enterprises (note a)	3	- .57	- 80.95	.97	93.55	82.35	2.00
Capital consumption allowances	3	- 4.65	- 36.61	4.65	36.61	94.99	1.61

a/Averages in billions of dollars.

Summary Measures of GNP Revisions1st July Income Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>1968-1980</u>						
	<u>Annual changes</u> (number)	<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
Compensation of employees	9	- .16	- 1.65	.22	2.29	99.22	.60
Wages and salaries	9	- .06	- .67	.19	2.09	99.34	.63
Government and government enterprises	9	- .32	- 3.70	.42	4.80	99.29	1.06
Other	9	.01	.15	.22	2.48	99.37	.97
Supplements to wages and salaries	9	-1.01	- 6.89	1.81	12.40	98.12	5.74
Employer contributions for social insurance	9	.01	.05	1.27	9.05	100.05	5.77
Other labor income	9	-2.07	-13.67	2.40	15.87	96.29	7.36
Proprietors' income with inventory valuation adjustment	9	1.09	13.38	2.16	26.05	99.67	7.89
Farm	9	1.36	9.63	5.37	27.72	109.12	17.28
Nonfarm	9	.41	6.08	1.78	26.36	96.39	8.59
Rental income of persons	9	-1.91	-25.10	4.09	53.71	90.67	16.37
Corporate profits with inventory valuation adjustment	9	- .42	- 3.56	4.14	25.65	99.38	13.84
Profits before tax	9	- .44	- 4.16	3.04	20.75	98.86	11.31
Profits tax liability	9	.83	9.58	2.44	20.21	101.63	8.58
Profits after tax	9	-1.27	-10.66	4.36	26.17	97.04	13.49
Dividends	9	.10	1.36	3.68	51.64	106.83	6.50
Undistributed profits	9	-1.37	- 8.53	7.43	29.41	90.35	22.91
Net interest	9	-1.36	-10.25	3.68	27.67	95.26	17.29
National income without capital consumption adjustment	9	- .14	- 1.45	.39	4.04	98.78	1.34
Business transfer payments	9	-1.21	-11.46	6.39	60.53	98.29	26.96
Indirect business tax and nontax liability	9	- .28	- 3.17	.46	5.27	99.35	1.43
Subsidies less current surplus of government enterprises (note a)	9	- .02	- 4.44	.18	18.39	87.00	1.10
Capital consumption allowances	9	- .89	- 9.55	1.70	18.21	102.97	6.21

a/Averages in billions of dollars.

Summary Measures of GNP Revisions

2nd July Income Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>Annual changes</u> (number)	<u>1968-1980</u>					
		<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level</u> (percent)	<u>Range of revision</u>
Compensation of employees	8	.00	.00	.15	1.68	99.39	.60
Wages and salaries	8	.00	-.03	.09	1.04	99.42	.32
Government and govern- ment enterprises	8	-.15	-1.71	.25	2.90	99.48	.75
Other	8	.03	.41	.09	1.05	99.40	.30
Supplements to wages and salaries	8	-.03	-.19	.92	6.63	99.10	3.42
Employer contributions for social insurance	8	.36	2.95	.95	7.66	99.99	3.32
Other labor income	8	-.41	-2.66	1.21	7.94	98.31	3.79
Proprietors' income with inventory valuation adjust- ment	8	-.71	-16.55	1.25	23.13	98.56	4.05
Farm	8	.25	45.14	2.48	23.69	107.56	12.04
Nonfarm	8	-1.16	-18.22	1.24	19.17	95.82	3.37
Rental income of persons	8	-.23	-3.41	2.75	41.58	92.61	8.72
Corporate profits with inven- tory valuation adjustment	8	.28	3.06	2.65	16.48	98.81	7.95
Profits before tax	8	.28	3.50	1.57	12.56	98.64	6.74
Profits tax liability	8	-.27	-4.29	1.61	15.68	100.54	5.29
Profits after tax	8	.86	9.60	2.78	19.50	97.38	12.00
Dividends	8	1.27	19.41	1.97	30.00	106.79	2.70
Undistributed profits	8	1.64	14.19	6.35	28.97	90.17	26.37
Net interest	8	-.24	-1.67	3.28	23.09	95.48	9.75
National income without capital consumption adjustment	8	-.07	-.78	.30	3.40	98.83	1.08
Business transfer payments	8	1.00	-9.71	4.24	41.35	98.70	14.34
Indirect business tax and nontax liability	8	.27	-3.15	.39	4.46	99.58	1.08
Subsidies less current surplus of government enterprises (note a)	8	-.14	-52.38	.19	14.85	84.15	1.00
Capital consumption allowances	8	-.35	-3.72	.75	7.99	103.66	2.37

a/Averages in billions of dollars.

Summary Measures of GNP Revisions

3rd July Income Side Annual Estimates Compared to Latest

<u>GNP components</u>	<u>Annual changes (number)</u>	<u>1968-1980</u>					
		<u>Bias</u>	<u>Relative bias</u>	<u>Dispersion</u>	<u>Relative dispersion</u>	<u>Relative level (percent)</u>	<u>Range of revision</u>
Compensation of employees	7	.02	.27	.15	1.68	99.43	.43
Wages and salaries	7	-.01	-.17	.09	1.05	99.45	.27
Government and government enterprises	7	-.19	-2.20	.23	2.57	99.56	.49
Other	7	.03	.40	.08	.99	99.43	.23
Supplements to wages and salaries	7	.25	1.80	.66	4.74	99.21	1.93
Employer contributions for social insurance	7	.19	1.41	.34	2.55	99.66	1.09
Other labor income	7	.35	2.39	1.13	7.85	98.89	3.55
Proprietors' income with inventory valuation adjustment	7	-.54	-10.60	.77	11.94	98.83	2.91
Farm	7	-.11	-1.50	1.26	6.87	106.05	3.62
Nonfarm	7	-.78	-14.86	.88	16.39	96.62	2.30
Rental income of persons	7	.18	2.88	2.83	45.10	93.49	9.48
Corporate profits with inventory valuation adjustment	7	-.91	-11.88	2.21	14.12	98.28	8.68
Profits before tax	7	-.72	-9.00	1.30	9.80	98.11	3.97
Profits tax liability	7	-.16	-2.49	1.45	13.52	100.55	5.31
Profits after tax	7	-1.07	-11.64	1.65	10.84	96.40	4.36
Dividends	7	.13	1.84	1.43	20.06	105.59	1.60
Undistributed profits	7	-1.94	-16.81	3.29	14.06	89.02	11.71
Net interest	7	.61	4.02	3.24	21.50	94.82	11.82
National income without capital consumption adjustment	7	-.09	-1.03	.34	3.97	98.83	1.03
Business transfer payments	7	.51	4.50	1.78	15.70	99.57	6.75
Indirect business tax and nontax liability	7	-.04	-.42	.23	2.69	99.81	.91
Subsidies less current surplus of government enterprises (note a)	7	.00	.00	.23	22.22	91.40	1.30
Capital consumption allowances	7	.30	3.60	.48	5.79	103.81	1.26

a/Averages in billions of dollars.



UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for Economic Affairs
Washington, D.C. 20230

OCT 21 1982

Mr. Henry Eschwege
Director, Community and Economic
Development Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

This letter provides the views of the Department of Commerce on the draft of the proposed report, "GNP Estimates Have Small Revisions But Data Problems Exist: Improvement Efforts Need Better Management." We appreciate your support of the GNP estimates, but have several serious concerns about the report.

1. The two major recommendations of the report are questionable. The first of these is that BEA take the lead in work on the improvement of the GNP data. This recommendation should not be implemented without greater thought. We believe that it would be preferable to have the Office of Information and Regulatory Policy (OIRA) within the Office of Management and Budget assume the leadership role. Of course, OIRA could rely on BEA for technical advice. In our opinion, OIRA would be more appropriate than BEA because OIRA possesses the authority to coordinate statistical policy across agencies and it has less perceived bias.
2. The second major recommendation is that BEA directly fund improvements in GNP source data. This recommendation would create fundamental changes in the way the Government's statistical program is funded without any feedback on the desirability of these changes from Congress and the Administration. The recommendation might encourage agencies -- despite admonishment to the contrary -- to shift resources from programs that supply GNP source data and to seek reimbursement from BEA to continue the programs. In those instances the Department would be faced with two options, both with attendant difficulties. If the Department were forced to seek new funding for existing GNP data sources, we would risk disapproval from Congress because of the increase in the overall budget total. The second option would be a transfer of the existing budgetary base for such work from other agencies to Commerce. Although the latter option may be preferable from our point of view, it also would require OMB and Congressional approvals which are always uncertain.

3. The report also makes two recommendations concerning analysis and evaluation of the accuracy of the estimates of GNP and its components, particularly in terms of revisions. While we agree that such analyses and evaluations are worthwhile, their limitations need to be kept in mind. Guidelines concerning the total error can only be stated in nonquantitative terms and are, therefore, of limited usefulness. This is because there are types of errors in the GNP estimates, as in all economic statistics, that cannot be quantified. While guidelines concerning revisions can be stated in quantitative terms, they also are of only limited usefulness. They can help in the identification of estimates that need improvement, but they have many shortcomings. For example, estimates that are never revised because their source data do not improve over time escape the net of the revision criteria. Also, one should note that there are only twenty quarters in the five years between benchmark revisions. This number of observations may not be enough evidence to determine much about changes in the reliability of the estimates. Thus, a full scale review may be more appropriate every ten years rather than every five years.
4. The proposed report discusses the extent to which the recommendations of the Advisory Committee on GNP Data Improvement have been implemented. As a result, the report focuses exclusively on the need for improved source data for the existing GNP estimates and how cutbacks in source data due to budget stringency are damaging the estimates. It does not recognize the greater damage to the usefulness of GNP estimates caused by a slowdown or cessation of developmental work.
5. The proposed report implies that improved source data will lead to improved estimates. However, the connection between the two is by no means obvious. Many of the Advisory Committee's recommendations relate to the improvement of annual historical data. In contrast, much of the report's interest, quite appropriately, is in the improvement of recent quarterly estimates. There is little connection between improving annual historical source data and improving these estimates. For example, no amount of improvement in the 5-year economic census data used to make benchmark estimates of GNP will improve the estimates of the most recent quarters. The essential feature of quarterly estimates is quarter-to-quarter change (rather than level), and estimates of change must be based on source data that are not related to the source data

collected in the economic censuses. Moreover, data that are affordable to collect and that would significantly improve estimates of recent quarterly changes in GNP and its components are difficult to provide.

I hope these comments will be useful to you in preparing the final draft of the report.

Sincerely yours,



Robert G. Dederick
Under Secretary for
Economic Affairs



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

OCT 4 1982

Mr. William G. Anderson
Director
General Government Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Anderson:

This is in response to your letter of September 1, 1982 requesting the Office of Management and Budget to review and comment upon your draft report, "GNP Estimates Have Small Revisions, But Data Problems Exist: Improvement Efforts Need Better Management".

The draft report confirms our belief that many needed improvements affecting the revisions of GNP estimates have been made, and the report's identification of specific GNP components which still undergo substantial revisions will be useful in further improvement planning. In addition, the report expresses concern that a number of particular improvements which were recommended by an OMB advisory committee in 1977 have not yet been completed and urges greater attention be shown to setting priorities among these recommendations. While pressing for further improvements is constructive, funds requested for many of the improvements were denied by the Congress for FY 1977-81, as the draft report points out. Moreover, budgetary realities today necessitate taking a harder look at the merits of making those further changes which five years ago may have appeared useful.

We are, I think, in basic agreement about the role that OMB's Office of Information and Regulatory Affairs (OIRA) should have in overseeing the implementation of the 1977 advisory committee's recommendations. This oversight encompasses statistical budget priorities for implementation of the recommendations, interagency coordination of the implementation efforts, creation of guidelines for acceptable margins of error for estimates of GNP and its component series, identification of data user problems with GNP estimates, and, finally, flagging of proposed changes in surveys which collect data for the GNP accounts.

I also agree with GAO's recommendation that the Department of Commerce should take the lead in managing GNP data improvement issues because of its dual role as data compiler for the GNP accounts at the Bureau of Economic Analysis and as data producer for many of the GNP component statistics at the Bureau of the

Census. BEA properly is responsible for identifying and justifying those data improvements which would have the most overall impact in improving the GNP estimates. OIRA can evaluate such proposed improvements in the context of other statistical budget priorities. This lead role for Commerce should also have the desirable effect of strengthening BEA's contacts with the producers of data needed for the GNP accounts.

In reviewing the reliability and adequacy of the GNP estimates, the GAO report relies almost exclusively on measures of revisions to the GNP estimates. Through this process four GNP components with sizeable revisions are identified as series which should receive high priority attention for data improvement. The GAO report also indicates that personal consumption expenditure for services and state and local government purchases are components of questionable reliability because of their use of projections based on past changes in lieu of quarterly data. It should be noted that many potential data problems in GNP components would not be detected by examining measures of the size of revisions. For example, deficiencies in the source data, adjustments made for inadequate coverage, biases introduced through imputations for missing data values, and definitional differences in source data and the information necessary for GNP estimates are nontrivial weaknesses which should be reckoned with in identifying those GNP components most in need of data improvement. Thus the GAO report provides only a partial basis for setting data improvement priorities. That is, whether several component series that were not highlighted in the report--e.g., wages and salaries, nonfarm proprietor's income, and single-family residential construction--are any more or less in need of attention than the components singled out by the report is not clear.

The GAO report leaves the impression that the 1977 advisory committee did not develop priorities for data improvement recommendations, and that the Office of Federal Statistical Policy and Standards did not develop corresponding priorities in the annual agency budget review process at OMB. Priorities were developed in both cases, and references should be made to their existence as well as to their limitations.

The GAO evaluation of the 1977 advisory committee's recommendations would be more useful if it related more systematically to the committee's report. In particular, Chapter 1 of that report highlighted the more important of the recommendations in each of five categories with a designation of the agency responsible for specific data improvements. An indication of the extent of implementation efforts in each of these categories would be valuable. In addition, there was a

list of important general recommendations at the end of this chapter to which there was no specific reference in the GAO report.

More detailed comments and suggested textual changes are attached in the interests of clarifying particular sections of the draft report. (See GAO note.)

Sincerely,



Joseph R. Wright
Deputy Director

Enclosure *

GAO note: OMB's detailed comments and suggested textual changes were considered in finalizing the report. A substantive comment made by OMB regarding our recommendation on page 63 that BEA budget for GNP improvements needed on a reimbursable basis that would primarily benefit GNP was that any such reimbursements should be subject to OMB approval in the annual review of agency budgets.

* We did not include the enclosure as part of the report.

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